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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR JANUARY 1854.

ART. I.—*Observations on the Black Vomit; its Nature and Composition, and its Value in the Diagnosis and Prognosis of the Yellow Fever.* By R. LA ROCHE, M. D., of Philadelphia.

EVERY practical physician or medical reader, who has made himself familiar with the diagnostic characters of the yellow fever, knows that, in a large number of cases, to a period of arterial excitement, of greater or shorter duration—usually from 48 to 72 hours—and constituting, as it were, a single paroxysm, there succeeds one of repose or remission, during which the patient, and not unfrequently his medical attendant, flatter themselves with the expectation that the danger is over and a complete recovery at hand. But although, in the milder forms of the disease, these expectations are often realized and convalescence soon sets in, experience teaches that, in very many instances, this period of repose, well-marked as it may be, proves treacherous, and is followed, not by a recurrence of febrile excitement, as occurs in other forms of autumnal fevers, but by a state of collapse, attended with a series of symptoms of a more or less formidable character, which lead usually to a fatal termination. Among these symptoms, the seriousness of which will not be contested, the ejection from the stomach of a peculiar matter, which, from its ordinary colour and appearance, has been long designated by the name of the black or coffee-ground vomit, stands pre-eminent. By not a few medical writers in this and other countries, it has been regarded as among the most distinctive features of the yellow fever. Indeed, there are not wanting those who view it in the light of the pathognomonic phenomenon *par excellence*—that which enables us to distinguish this from every other form of febrile disease—and who, though not going so far as to assert that none but cases attended with black vomit are to be regarded as entitled to the name of yellow fever, or uniting in sentiment with the advocates of the theory that, so long

as this matter is not ejected, it is impossible to diagnose that fever, think that the occurrence of the symptom is of itself sufficient to remove all difficulty as to the nature of the disease, while, on the contrary, its absence is equally sufficient to throw great doubts in reference to that question. Sir William Pym, in a letter to Mr. Vance, speaking of this black matter, calls it the most fatal "as well as the most distinctly marked symptom of the disease," and which, when united with a speedy termination, leaves no doubt as to the real nature of the case.[1] More recently, in a letter to Mr. Greville, of the Admiralty, on the subject of the fever which spread so fatally on board of the Æclair, Sir William speaks of the symptom in question as peculiar to the disease, and not encountered in kindred affections;[2] and in another letter, addressed to the Lords of the Council, on the fever of Boa Vista, he says: "This disease is unknown in the East Indies, in Egypt, or in Turkey, and is a native of and peculiar to the west coast of Africa; it is attended with the peculiar and fatal symptom of black vomit, a symptom which rarely, if ever, appears in the marsh or remittent fever."[3] It would be easy to show that other writers, of more or less note, have entertained opinions similar to those of Sir William Pym, relative to the importance of the black vomit in a diagnostic point of view,[4] and to its being exclusively an attendant on the yellow fever; and it is scarcely necessary to remark that the name of *vomito prieto*, given to the disease by the Spaniards, sufficiently indicates that, according to them, the symptom belongs to no other form of fevers, and serves to impart to the one in which it shows itself a peculiar and specific character—to stamp it as it were with individuality.

But whatever may be the opinion of Sir William Pym and others on the subject, experience has shown the impropriety of carrying it to the extent they have done. When considered by itself, without reference to other phenomena by which it is preceded and accompanied, and especially when noticed only in a single or a few sporadic instances, the black vomit is not sufficient to stamp the disease in which it occurs as being the true yellow fever; while, on the other hand, its occurrence in this disease is not sufficiently constant and necessary to justify us in refusing to recognize as such, cases which present its other symptoms, merely on the ground that black matter has not been ejected from the stomach.

In support of the first of these propositions, attention may be called to the fact that the dark coffee-ground substance in question is not unfrequently the effect of other causes than the peculiar poison giving rise to the yellow fever, and that it occurs at times not only in diseases more or less remotely connected with the latter, but occasionally in cases in no way allied to it. In the description of the Black Disease, contained in a treatise ascribed to Hippocrates, the matter thrown up is spoken of as being black-bile, or as resembling lees of wine;

[1] On Bulam Fever, p. 60. Ib. 2d ed. p. 37.
[2] See the 2d ed. p. 189.
[3] Parliamentary Doc. p. 5.
[4] Shecut, p. 120.

at other times, as a matter resembling blood. "Sometimes the matter vomited resembles the second wine; sometimes it is like the ink of the cuttle-fish; sometimes it is acid, like vinegar; sometimes it consists of saliva and thin phlegm; sometimes of greenish bile. When the black blood-like matter is vomited, it smells like putrid or sanious blood. The fauces and mouth are scalded by the acrimony of the vomit; it sets the teeth on edge, and effervesces with the earth on which it falls; when the vomiting is over, temporary relief ensues." We shall see, as we proceed, that much of what is here said by the father of medicine will apply very accurately to the true black vomit of yellow fever.

In common melæna, the general symptoms of which do not correspond to those of yellow fever, blood in various gradations of change, from a red fluid to a dark matter resembling the grounds of coffee, has been sometimes ejected from the stomach.[1] In the description of the variety of the disease which was denominated melanosis by the older writers, we are told that "the patient is suddenly seized with vomiting of dark-coloured blood, together with a discharge, by stool, of blood of the same appearance, or more frequently of a very dark and often extremely fetid semifluid mass, of the consistence and colour of tar. Occasionally, the black matter discharged is mixed with blood of more unequivocal appearance.[2]

Black vomit has not unfrequently resulted from the action of various poisons. That such is the case in regard to arsenic, we have the testimony of Sauvage,[3] of Dr. Edward Miller,[4] Dr. Waring,[5] and Dr. Shecut.[6] Poisoning by corrosive sublimate and verdigris has been known to result in the ejection of a similar matter from the stomach.[7] Dr. Monges mentions an interesting case in which similar effects followed the ingestion of a large dose of carbonate of potash.[8] I have known a very analogous effect produced by a quantity of borate of soda, swallowed by mistake, the patient becoming jaundiced and throwing up more than a pint of black matter, bearing a close resemblance to that ejected in the last stage of yellow fever, to say nothing of pain, fever, præcordial distress, &c. Vegetable poisons of various kinds are reported by good authorities to have occasioned like effects.[9] We know

[1] Bancroft, p. 31.

[2] Carswell, Cyclop. of Pract. Med. iii. p. 80, &c. Portal, Mémoires sur Plusieurs Maladies, ii. p. 129. Trans. of Irish College of Phys. i. p. 124. Dublin Hosp. Rep. i. p 259.

[3] Sauvage, Nosologie Méthodique, iii. p. 112.

[4] Works, pp. 152, 153. New York Med. Repos. ii. p. 412.

[5] Report on Yellow Fever of Savannah in 1820, pp. 37, 38. [6] Essays, p. 113.

[7] Miller, *op. cit.* pp. 51, 57; Chaussier, Consult. de Med. Leg. p. 40; Caillot, Fièvre jaune, p. 84; Percival's Essays, ii. p. 122.

[8] North American Med. and Surg. Journ. ii. p. 60.

[9] Hunter, Dis. of Jam. p. 156; Wepper, Hist. Cicutæ; Miller, *op. cit.* p. 153; Dewitt on Stramonium, Med. Repos. ii. p. 30; Sauvage's Nosol. iii. p. 444; Rochoux, pp. 79, 80; Salva, p. 172, quoted by Rochoux.

also, from olden times, that animal poisons, those of the viper, scorpion, &c., produce occasionally effects of the kind noted above.[1] It was long ago found, and has recently been insisted upon by Dr. Mitchell, of this city, that fungi of various kinds possess the power of producing phenomena somewhat akin to those characteristic of malarial fevers generally, but more particularly to those of the yellow fever; and among them figures the black vomit.[2] The same symptom has been known to arise from mechanical injuries to the stomach. Dr. Monges mentions a case in which it was produced by the kick of a horse.[3]

The ejection of a similar fluid from the stomach or bowels is often found to follow the introduction of putrid substances into the circulation. Levacher states, as the result of his experiments on dogs, in whom, by the way, the act of vomiting is not easily excited, that the discharge of bilious and poracious matter from the stomach was soon succeeded by that of blood, and of a fluid which he likens to that thrown up in the yellow fever. Then follow dysenteric and black stools.[4] It should be borne in mind that Levacher, who cites these facts as illustrative of the close analogy existing between the yellow fever and diseases produced by putrid and poisonous substances, was perfectly familiar with that fever, and as able as any physician to decide the question of similarity between the fluids vomited in both cases.

Hear what Magendie says on the subject: "No sooner have a few particles of putrid matter passed into the circulation, than the animal is attacked with formidable symptoms. He throws up by vomiting a blackish and grumous (poisseux) liquid. This," Magendie adds, "is nothing more than blood exhaled from the inner surface of the stomach, the mucous membrane of which, throughout its whole extent, is puffed up by deposits of blood effused beneath it and in the cellular tissue."[5]

The second and third volumes of Magendie's *Journal of Physiology* contain accounts of experiments by M. Gaspard, confirming the foregoing statements. The facts resulting from these experiments evidently point, as is remarked by Magendie, to the cause of the black vomits, which take place in yellow fever, certain typhus cases, &c. A much higher authority than the French physiologist, so far as respects the black vomit of the former of those diseases — the late Dr. Harrison, of New Orleans — remarks, in relation to the results of the aforesaid experiments: "No one, I think, can fail to be struck with the extraordinary resemblance of these symptoms, and *post-mortem* lesions to those of yellow fever. The characteristics of the

[1] Sauvages, iii. pp. 112, 115, 448; Ferguson, Recol. 204, 205; Caillot, *op. cit.* 296; Bally, Typhus d'Amérique, p. 552; Levacher, Guide des Europeans aux Antilles, p. 78; Hunter, p. 156.

[2] Sauvages, iii. p. 115; Mitchell on the Cryptogamic Origin of Fevers, p. 73.

[3] *Op. cit.* p. 60.

[4] *Op. cit.* p. 80.

[5] Phénomènes Physiques de la Vie, iii. p. 223.

disease, its rapid course, its hemorrhagic tendency, its peculiar lesions, are all to be met with in these experiments. We have *black vomit*, bloody alvine discharges, &c., all so characteristic of yellow fever."[1]

Dr. Evans relates the case of a woman who died of metro-peritonitis, occurring in the puerperal state, arising apparently from the putrefaction of the retained placenta. The abdomen was *balloné*, and exceedingly painful to the touch. There were fetid discharges from the vagina, with great heat and pain. The pulse was scarcely perceptible, and the extremities were cold. "But the most remarkable symptom was the almost incessant vomiting, without effort, of immense quantities of a dark chocolate-looking matter, filling several chamber-pots." On dissection, the stomach was found to contain "a quantity of black matter, similar to that vomited, probably the greater part of a pint." "In this case," says Dr. Evans, "was observed that symptom which, according to many, constitutes one of the diagnostic peculiarities of yellow fever." And as that physician was perfectly familiar with the characteristic appearance of the black vomit, as observed in the latter disease, we may presume there can be no doubt as to the nature of the fluid ejected in the case above mentioned. Dr. Evans again adverts to this case, while treating of black vomit, in a subsequent part of his work.[2] M. Levacher refers to instances of the same kind arising from analogous causes (p. 80).

The discharge of a similar fluid from the stomach or bowels, or its discovery in these organs on dissection, is not unfrequently noted in fatal cases of some forms of puerperal fever. It is often mentioned by the older writers on the disease, and alluded to more or less explicitly in works of modern date. That much of what is therein said of the ejection of black matter does not apply to a substance in every way similar to the coffee-ground vomit of yellow fever, I shall not attempt to deny; for the characteristic features of the fluid observed are not always described with sufficient minuteness and precision to enable us to form an accurate idea of its true nature. In addition to this, it may be remarked, that the matter thrown up in puerperal fever is usually stated to have consisted of altered bile; and though we know, from what has occurred in relation to the yellow fever, that little reliance can be placed on assertions of the kind; the fact that bilious discharges may and do sometimes take place in puerperal fever, must induce us to refrain from adducing the statements of several writers who mention the symptom in proof of the occasional discharge of true black vomit in this disease.[3] Dr. Gordon is more explicit on the subject: "A vomiting of bile of a green colour was a symptom which frequently occurred, especially when the patient was costive; and when there

[1] On the Causes of Yellow Fever. N. O. Journ. iii. p. 570.

[2] A Clinical Treatise on the Endemic Fevers of the West Indies, pp. 247–8.

[3] Hulme, Essays on Puerperal Fever, published by the Sydenham Soc. pp. 66, 97; Leake, pp. 184, 189, 194, 195; Clarke, 424. See also Robert Lee, Cyclop. of Pract. Med. ii. p. 252.

were symptoms of mortification, what the patient vomited was black, and had a strong resemblance to the grounds of coffee."[1] "Frequent vomiting of a coffee-coloured fluid" is mentioned by Dr. Armstrong, who justly considers it as a highly dangerous symptom.[2] Black vomit in puerperal fever is farther mentioned by the late Dr. Monges, of this city,[3] Dr. Dickson, of Charleston,[4] and Dr. Dickinson.[5] Dr. Dewees says: "We have seen more than one instance of puerperal fever terminating in black vomiting, similar to that observed in yellow fever."[6]

The following extract from a letter addressed to me by Dr. C. D. Meigs, of this city, whose extensive experience in this disease is well known, deserves attention: "In compliance with your request, I have to state that, during my very long and continued practice as accoucheur in Philadelphia, I have had many occasions to observe the changes that precede dissolution in childbed fever. I think that fatal cases of that disease will rarely fail to be attended with black vomit, beginning in the last stages. In the course of my practice, I have also seen fatal yellow fever attended with black vomit. I have also observed that persons perishing with acute peritonitis, often, in approaching the final stages of existence, are attacked with black vomit. I am fully convinced that in the black vomit of childbed fever, of yellow fever, and of acute peritonitis, in males or females, no difference whatever can be detected; and that the ejection of that fluid is not, therefore, peculiar to yellow fever."

Dr. Dewees states that he has also seen the same appearance after rupture of the uterus.[7] And in another work he remarks: "She (the patient) is sick at stomach, and most frequently vomits; the matter discharged is sometimes the common contents of the stomach, at other times it consists of a very dark, even black-coloured substance, resembling coffee grounds."[8] Another writer already quoted, Dr. Dickson, of Charleston, is of opinion that black vomit always follows the occurrence just mentioned.[9] The same gentleman adds: "Dr. P. G. Prioleau, whose professional experience has seldom been equalled, and whose authority upon any point of fact is undisputable, assured me he had repeatedly known it (black vomit) to take place among the early vomiting of pregnant women without unpleasant results."[10] In another publication, Dr. D. relates the following case: "On the 17th of November, 1825, I was desired to visit, in haste, Mrs. J. F., a lady in the eighth month of pregnancy. I found her sitting supported in bed, throwing up the black vomit.

[1] Essay on the Puerperal Fever, p. 10; Essays of Sydenham Society, p. 450.
[2] Observations on Puerperal Fever, p. 131.
[3] *Op. cit.* p. 60.
[4] Essays, p. 355.
[5] Observations on the Inflammatory Endem. p. 51.
[6] Diseases of Females, p. 378, note.
[7] Ibid. p. 378.
[8] System of Midwifery, p. 464.
[9] Essays, p. 355; Phila. Med. and Phys. Journ. xiv. p. 208.
[10] Ibid. p. 355.

There were violent headache, severe pain in the eyes, which were intolerant of light, no pain at the epigastrium. A slight purgative was ordered, and she was next day as well as ever."[1] Dr. Nott, of Mobile, recalls the fact that, when fever occurs to women in the state of pregnancy, and there is much and protracted vomiting, small specks or streaks of black matter, like broken up butterfly wings, are thrown up, very similar to those which form the usual precursors of black vomit in yellow fever." Dr. Crawford related to him the following case: "The patient, during the month of December last (1844), ill of protracted fever, possessing no other symptom of yellow fever, and at a time and place where this disease was not prevailing, threw up black matter profusely, which could not be distinguished from the black vomit of yellow fever."[2]

Dr. Dickson has met with the black vomit in several cases of bilious remittent fever. In 1825, he saw two patients die of that disease upon the Charleston Neck, who ejected that fluid by the stomach and bowels. In each, the symptoms appeared on the fourth day. They lived at some distance from the city on low, wet ground, and were particularly exposed to the ordinary causes of autumnal remittents and intermittents. Dr. D. saw cases of the kind in 1827.[3] The black vomit has been noticed in malignant cases of our lake fevers.[4] Dr. Hildreth, in his account of the fever which prevailed at Marietta, Ohio, in 1823, enumerates the black vomit among the symptoms of the most severe cases.[5] The same symptom has been observed in the remittent fever of other parts of this country.[6] Dr. Fenner, of New Orleans, mentions two cases of the sort as occurring in 1850. The first was that of a boy 8 years old, who arrived there in 1847, and suffered from the epidemic of that year. He afterwards enjoyed good health until about the 15th of July, 1850, when he was severely attacked with dysentery. He was never suspected of having the yellow fever; but, on the night of the 19th of July, he threw up black vomit freely, and died. There was no yellowness of the surface nor of the eyes. The other case was a dissipated Irishman, who had been several years in New Orleans. He was admitted into the Charity Hospital on the 11th of September labouring under the prevailing remittent bilious fever, with great irritability of stomach and copious bilious vomiting. On the day following, the ejecta became darker, with flocculi resembling the beginning of black vomit. There was also hemorrhage of the gums. "The bile now disappeared, and the dark colour increased until the ejecta presented very good specimens of black vomit. The next appearance was a copious vomiting of pure blood, which lasted at least two days and nights. It then began to diminish, and

[1] Ibid. p. 207.

[2] Amer. Journ. Med. Sci. N. S. ix. p. 283.

[3] Essays, 355, Phil. Med. and Surg. Journ. xiv. p. 208; American Journ. ii. p. 73.

[4] Coventry, Trans. of Med. Soc. of State of New York for 1825, p. 46. See also Second Report of Quarantine. Lond. 1852, p. 377.

[5] Phil. Med. and Phys. Journ. iii. p. 110.

[6] Cooke, Med. Recorder, vii. p. 507.

then to present the appearance of black vomit. This gradually became lighter, and finally gave place to greenish-yellow bile again, which continued till the day of his death on the evening of the 24th. On the last day, the dark flocculi again appeared in the ejecta. There was no jaundice, no injection of the conjunctiva, no watery eyes, no flushed countenance. Nor did the body turn yellow after death. The stomach contained not black vomit, but yellow bilious matter. There were ecchymosed patches—the evident sources of the black fluid. The liver presented a natural appearance, and the gall-bladder contained bile. In a word, none of the phenomena observed during life and of the appearances discovered after death are calculated to lead to the suspicion that the patient was affected with the yellow fever."[1]

Cleghorn saw the black vomit in the tertian fever of Minorca, the symptoms of which, even in its worst form, bear but a remote analogy to those of the yellow fever. In that disease, he found that "the utmost danger is to be apprehended if black matter like the grounds of coffee is discharged upwards and downwards."[2] In several cases of Mediterranean fever, detailed by Sir William Burnett, and some reported to him by Dr. Ross, the black vomiting took place.[3] Though not seen by Dr. McWilliams,[4] nor by Dr. Pritchett,[5] in the fever they observed during the Niger Expedition, there are not wanting facts to show that it is not always absent in the closing scene of the African remittent. Sure it is that black vomit occurs occasionally in certain malignant or pernicious forms of the fever from which the French troops have so severely suffered in Algeria.[6] Pugnet mentions vomiting of black matter as a fatal symptom in the Demel-Mouia, a form of pernicious fever observed in Egypt.[7] The Batavian fever, even that of the Island of Edam, for a graphic description of which we are indebted to Dr. J. Johnson, differs in too many respects from the true yellow fever to be confounded with it. It partakes much more of the character of the malignant bilious remittents of many tropical regions. Some of the patients on shore were carried off in eighteen, twenty-four, thirty, or forty hours, but many not till as many days after the attack, especially when removed on board from the more noxious air of the island. "The fatal terminations generally happened on the third, fifth, seventh, ninth, and not unfrequently the eleventh and thirteenth day; if they passed this period, they usually lingered out twenty or thirty days." This prolongation of the disease is sufficient—apart from other phenomena noticed in its course—to establish a line of demarcation between it and typhus icterodes; and yet in a few—not a majority, as in the latter fever—of the cases that ended fatally, the patients

[1] Southern Med. Reports, vol. ii. pp. 89, 90.

[2] Dis. of Minorca, 175.

[3] Account of the Mediterranean Fever, pp. 50, 157, 421.

[4] Med. Hist. of the Expedition to the Niger, p. 138.

[5] Some Account of the African Remittent Fever, p. 162.

[6] Haspel, Maladies de l'Algérie, ii. pp. 167–8. Boudin, Fièvres Intermittentes, p. 155.

[7] Fièvres Pestilentielles, p. 234.

threw up a fluid resembling the black vomit. Dr. Johnson, it is true, denominates the fluid "black bilious stuff," but as he adds that it resembled "the grounds of coffee," and it is doubtful whether bile assumes that character, and as, besides, we cannot find that Dr. J. regarded the discharge which takes place in the yellow fever as being other than of a bilious nature, we may justly view the fluid above mentioned as similar to that thrown up in the last-mentioned complaint.[1] Trousseau mentions somewhere a case of pernicious fever in which the black vomit was "perfectly identical" with that which is thrown up by patients labouring under yellow fever. Lancisi records the appearance of brown and black vomit and stools in an epidemic at Pesaro, in 1708. Garniere saw it in the fever hospitals at Rome and even at Versailles.[2] In the West Indies, it may, as Dr. Imray informs us, be of rare occurrence in the bilious remittent and seasoning fevers; but that it occasionally occurs, we may infer from the expression he himself uses and the more positive asseveration of other writers.[3] In enumerating the symptoms of the typhus fever he noticed in Dublin, Dr. Stoker mentions *black vomiting*, melænous feces, and dusky yellow skin, and adds: "The connection which generally subsists between all those symptoms is evinced by their frequent alternation. Thus, the green and black vomiting often alternate, with melænous and alvine discharges, and both of these in other cases with petechiæ, and dusky yellow colour of the surface of the body, and also with similarly coloured suffusion of the eyes."[4] In the relapsing fever of Scotland and Ireland, it was occasionally, and during the epidemic of Dundee quite frequently, observed.[5]

The following remarks, in reference to this singular fever, would almost seem to have been intended for yellow fever: "Associated with the yellowness, there are generally depression, less or more delirium, dusky and often porter-coloured urine, black melæna-like stools, and hemorrhages from some of the mucous membranes. In the worst of the cases, black coffee-ground-like matter is ejected from the stomach, and passed per anum. In some cases, the black vomit occurs without the yellowness; and, on the other hand, at the autopsy of yellow patients who have had no black vomit, this matter has been found in the stomach and other parts of the alimentary canal."[6] And yet, as Dr. Craigie very justly observes (*loc. cit.*), "notwithstanding black vomit and jaundice, it is scarcely possible, with any consistency in nosology and common observation, to admit even the resemblance between this fever and yellow fever."

[1] The Influence of Tropical Climates, &c. pp. 130–2.

[2] See Second Report on Quarantine. Lond. 1852, p. 277. Bulletin of Ac. of Med. vol. xv. p. 1065.

[3] Copland, iii. pp. 144, 1144; Dickinson, p. 133; Second Report on Quarantine, 323.

[4] Pathological Observations, part ii. p. 103.

[5] Craigie, Edinburgh Journ. lx. p. 416; Smith, Edinburgh Journ. lxii. 67; and Russell, Dublin Journ. viii. 70.

[6] Cormack, Natural History, Pathology, and Treatment of the Epidemic Fever at present prevailing in Edinburgh, p. 23, 1843.

In the summer of 1822, after a long continuance of unusually hot weather, there occurred in the Hôtel Dieu, of Paris, several cases of fever accompanied with jaundice and black vomit. Two patients were, at the same time, similarly affected at La Charité, in the wards of M. Lerminier, and several instances of what was denominated sporadic yellow fever were seen in Paris. In reference to the patients admitted in the latter hospital, Andral informs us that they had delirium, a black tongue, tympanitic bowels, a jaundiced discoloration of the surface, and exhibited evident signs of an ataxo-adynamic state of the system. They both threw up a quantity of a substance bearing a strong resemblance to soot—an appearance which, as we shall see, is often assumed by black vomit. It may be doubted, however, that those cases were anything more than typhoid fever modified by the extreme heat of the season. One of the patients recovered under the use of the most powerful stimuli. The other died, and the autopsy revealed a gastro-enteritis, with red softening of the mucous membrane, and ulceration of the intestines, an anatomical character which does not belong to yellow fever.[1]

The fever which occurred in Copenhagen, in 1788 and 1789, and caused considerable mortality, was characterized by black vomiting. For this reason, and owing to its being attended with yellowness of the eyes and skin, the disease was, and continues by some to be, regarded as the true yellow fever. But considering that it is stated to have raged for some years before among the sailors of the Danish fleet, which seldom sails to tropical climates—that it did not assume its malignant character before the end of October, 1788, when that fleet was united to the Russian vessels of war, and during the prevalence of cold wet weather and easterly winds—that it prevailed in the winter—that three hundred patients who were admitted into the Naval Hospital infected many of the attendants, who again propagated the disease to the rest of the town, but especially to the people belonging to the navy—that, indeed, it was contagious—that during the three days after the arrival of the patients on shore not fewer than six surgeons and sixteen female nurses were attacked by it—that it presented symptoms very seldom if ever noticed in yellow fever, such as gangrene of the feet, hands, face, throat, ears, back—and that it was most successfully treated by emetics, opium, and wine—remedies of doubtful efficacy in yellow fever—we may reasonably demur to the opinion in question, and suspect that, notwithstanding the occurrence of black vomit and jaundice, the disease must be regarded as a modification of ship or typhus fever.[2]

Dr. Cormack states that a case of typhus came under his observation in one of Dr. Alison's fever wards (Edinburgh), in which the patient, on the seventh day of the fever, after a well-marked remission of the symptoms (which had been severe), was suddenly seized with jaundice and black vomit. The wea-

[1] Dict. de Méd. 1st edit. vol. xxi. p. 17, article Typhus.

[2] Otto, Med. Top. of Copenhagen; Trans. of the Provincial Med. and Surg. Association, vol. vii. p. 192. Lond.

ther was, during the whole of the case, below the freezing point.[1] Instances of typhus fever also occurred in Dublin during the epidemic of 1827, as we learn from Drs. Stokes[2] and Graves,[3] which, from the circumstances of their being accompanied with yellowness of skin and occasionally with the ejection of black matter from the stomach, were denominated yellow fever. In the description of the symptoms, as given by Dr. S., we find that most of the patients vomited, and, in two cases, a matter resembling coffee-grounds was discharged from the stomach and bowels. In one case, Dr. Graves found a "considerable quantity of a dark-red fluid in the stomach, with a good deal of a substance resembling coffee-grounds." After what precedes, and considering, too, that these cases occurred during the cold weather of the winter months, when true yellow fever never shows itself, and that the summers of Dublin—supposing cases like those mentioned to have sometimes occurred in that season—are not sufficiently long and oppressively hot to produce that disease, and that the symptoms observed in Dublin are not analogous, this black vomit and jaundice excepted, to those of the fever of this country or tropical climates, we may admit the identity of the fluid thrown up on those occasions, or discovered on dissection, with the true black vomit, without being obliged to admit also the identity of the two fevers, and to coincide with Dr. Graves when he states that "there is not so much difference between the diseases of Ireland and warmer countries as has been imagined;" and that "they differ, it is true, as to their degrees, but not as to their pathology."

The black vomit has also been found to occur in the oriental plague.[4] Dr. Parry, of Bath, describes a case of local organic disease of the stomach, attended with vomiting of matter very much like black vomit of yellow fever.[5] Dr. Dickinson informs us that he has seen "the discharges from the stomach inky, fuliginous, grumous, like coffee-grounds, or containing dark membranous-like shreds, in gastric affections of a purely topical character."[6] Dr. Dickson, of Charleston, has also found it to occur in gastritis and enteritis.[7] He has seen it likewise in a case of catarrhal fever, in a child three and a half years old, as also in one of varioloid occurring in winter. It ceased on the appearance of the eruption, and the patient recovered. The same physician saw it in two cases of dropsy. Dr. Prioleau, already mentioned, detailed to Dr. Dickson a singular instance of the occurrence of this peculiar discharge in a healthy boy, without any previous or evident bad symptom, and occasioned by no evident cause beyond mere *fatigue*, the youth having run about

[1] *Op. cit.* pp. 90, 91.

[2] Cyclop. of Pract. Med. article Enteritis, ii. p. 59.

[3] Clinical Med. 8vo. 1843, p. 215, Am. edit. pp. 186, 192.

[4] Clot Bey, 30, 1, 6, 56; Caldwell, p. 19; Pugnet, p. 158; Lacheze, Bulletin de l'Acad. de Méd. i. p. 351.

[5] Medical Notes, ii. p. 327.

[6] *Op. cit.* p. 51.

[7] Essays, 355; Phila. Med. and Phys. Journ. xiv. p. 207.

and played much on a summer day. He slept after vomiting, and awoke quite well.[1]

The same discharge has occasionally presented itself in "apoplexy from a stroke of the sun, in injury of the brain, from external violence, and in inordinate intoxication."[2] It occurred in this city, a few weeks ago, a short time before death in a child nine months old (a mile from the infected district), affected with cerebral irritation consequent on common summer bowel affection. Dr. R Armstrong saw it in a case of psoas abscess, sent to the Hospital of Jamaica, in the last stage of hectic fever. The patient died on the seventh day after admission, from mere exhaustion, and the stomach was filled with black vomit, although none appeared during life.[3] The writer of these pages has seen an interesting case of copious ejection of well-marked black vomit occurring in a fatal attack of colic. The disease ended fatally in a few hours, and will be alluded to again more in detail in a subsequent part of this essay. Dr. Kelly saw the same kind of discharge at the moment of death from phthisis pulmonalis;[4] and we are indebted to Dr. R. Armstrong, already mentioned, for the following account of a case of the same kind: "A marine, invalided at Barbadoes, was sent to Jamaica Hospital to wait for a passage to Europe; he was in the last stage of phthisis, with purulent expectoration, hectic paroxysms in the evening, and diarrhœa. On the fourth day after admission, he complained of general indisposition and loss of appetite; the tongue was clean, and there were no symptoms indicative of any other disease than the affection of the chest. In the evening, he brought up a small quantity of black vomit, became delirious, and died the following morning. On dissection, the stomach was found to contain about a pint and a half of this fluid."[5]

But these examples must suffice. They establish, beyond a doubt, not perhaps the frequent, but certainly the occasional occurrence of black vomit in diseases differing more or less from the yellow fever. It may be that in some of the instances mentioned, occurring as they did in yellow fever regions, and at a period of the year when that disease usually shows itself, the effect will be attributed by some to the influence of the peculiar poison giving rise to the latter. Yet when we take into consideration, that the fever did not prevail at the time, and that the cases in question presented none of its characteristic symptoms, we can scarcely be justified in explaining their occurrence in that way; while, in other instances, the discharge of black vomit took place under circumstances which render such an explanation perfectly inadmissible, and compel us to refer it to causes totally independent of those of yellow fever.

These facts show, therefore, that the occurrence of black vomit, as already stated, is not by itself sufficient to characterize the disease. Equally certain

[1] *Op. cit.* [2] Dickinson, *op. cit.* p. 51. [3] Influence of Climate, p. 169.
[4] Amer. Journ. Med. Sci. xiv. N. S. p. 383. [5] Influence of Climate, p. 169.

is it, that other facts demonstrate the impropriety of assigning a different nosological position to, and of refusing to view in the light of true yellow fever, or referring to causes different from those to which this disease owes its origin, cases presenting its well-known characteristic symptoms, on the score of their not being attended with the discharge of the black matter in question. In illustration of the inadmissibility of such a conclusion, appeal may be made to the well-known circumstance that, with few exceptions, none of those who recover from the fever throw up coffee-ground matter, which, when it does present itself, is almost exclusively an attendant on fatal cases. Nay, it is not less true, that even among those who die, and especially when the disease ends suddenly or rapidly, or the brain is early implicated, black vomit often fails to show itself.[1] In this city, in 1820, it was computed to have done so in nearly one-third of the fatal cases.[2] It was frequently absent during the formidable epidemic of Barcelona, in 1821.[3] In Gibraltar, in 1814, black vomit was rarely seen.[4] In the eighty-fourth regiment (British) at Jamaica, in the epidemic of 1827, the black vomit, according to the surgeon's official report, rarely appeared in fatal cases, although the fever was so severe that one hundred and forty men died in six weeks.[5] Dr. Bancroft remarks, that in cases in which the brain suffers much, and these are not unfrequent, the black vomit does not commonly occur.[6] Dr. R. Jackson observes, that if the fever terminates before the third day, black vomiting is scarcely ever seen; also, when the disease does not go through the usual processes, which is the case in the concentrated form of the fever in persons of a phlegmatic, and of what he calls the gangrenous temperament (the form which prevailed at Grenada in 1793), for in this the black vomit occurs "on some occasions near the last hours of life; but not often, and only when the vascular action has been excited to a considerable extent in the preceding course of the disease.[7] During the epidemic which prevailed on board the French frigate l'Hermione, at the Havana, the black vomit was very frequently absent; for in three hundred and twenty-three cases which fell under the observation of Mr. Maher, that symptom was only noticed seven times.[8] In New York, in 1822, the black vomit was also of comparatively rare occurrence. In two hundred and fifty-four cases which ended fatally, this symptom appeared only in eighty or ninety.[9] In 1819 it was equally rare.[10] At

[1] Bone on Yellow Fever, p. 4; Lewis, New Orleans Journ. iv. p. 159.

[2] Jackson; an Account of the Yellow or Malignant Fever which appeared in the City of Philadelphia in 1820, p. 56.

[3] Rochoux, Recherches sur les différentes Maladies qu'on appelle Fièvre Jaune, p. 552.

[4] Cyc. of Pract. Med. ii. pp. 272–3.

[5] Ib. p. 272.

[6] Essay on the Yellow Fever, p. 13.

[7] A Sketch of the History and Cure of Febrile Diseases, i. p. 94.

[8] Annales Maritimes for 1842, pp. 847, 850.

[9] Townsend, pp. 163–4; Pascalis, J. Méd. de Marseilles, v. p. 140.

[10] C. Drake, Med. Repos. xxii. p. 136.

Natchez, in 1823, it was only a casual symptom, occurring most commonly in the congestive form of the disease.[1] In Gibraltar, in 1828, according to Dr. Gillkrest, of one hundred and ninety-six cases, only six vomited it during life. Dr. Davy, in a note to Blair's excellent Essay on the Yellow Fever, alludes to an epidemic at Barbadoes, in 1811, in which the gastric symptoms were very inconsiderable. And the same absence of it, though not always to the same extent, has been noticed in other cities of this country and the West Indies, and on board of infected vessels.[2]

It is to be remarked, that in many of the fatal cases in which the matter of the black vomit is not ejected from the stomach, it may sometimes be detected in that organ during life by the swelling of the abdomen and the gurgling noise heard on motion.[3] More frequently it is discovered on dissection.[4]

Nor is it less to be borne in mind that considerable difference is found to exist as regards the frequency of this symptom, in different places, or at different times in the same place. While, as we have seen, it occurred seldom on some occasions in the West Indies; at Dominica, in 1838,[5] and at Guadaloupe, during several years,[6] it was found in a large majority of fatal cases. At Galveston, in 1839, it was of frequent occurrence, and indeed constant in bad and fatal cases.[7] During the epidemic of 1839, at New Orleans, the black vomit was less frequently noticed than it had been in former seasons,[8] but in 1844 it again showed itself in a large number of cases, and, indeed, was proportionally more common than heretofore.[9] Dr. Blair informs us that at Demerara, in 1837, the mortality amounted to four hundred and four out of two thousand and seventy-one cases. Of those who died, three hundred and sixty-six had the black vomit.[10] While in New York, as we have seen, the discharge occurred but rarely, even in fatal cases. We learn that, in former epidemics, the number of cases in which it was observed amounted to full one-half of those that died.[11] In Charleston, it was comparatively seldom encountered in 1817, 1824, and 1827; while in 1835 it was frequent.[12]

[1] Merrill, Phila. Med. and Phys. Journ. vii. p. 245.

[2] Irvine, p. 30; Valentin, p. 27; Archer, Med. Rec. v. p. 68; Baxter, Med. Repos. xxi. p. 3; A. Smith, Amer. Journ. Med. Sci. xxv. p. 503; Stone, New Orleans Journ. ii. p. 553; Dickson, Eclectic Journ. iv. p. 110; Evans on Yellow Fever, p. 257; Osgood, p. 12; Bally, Typhus d'Am. p. 240; Blair, p. 82; Pym, 2d ed. p. 81; Minutes of the Proceedings relative to the Fever which occurred on board the Macedonia, p. 29.

[3] Dickson, Essays, p. 350; Wood, i. p. 301.

[4] Michel, Charleston Journ. v. p. 748; Townsend, p. 190; R. Armstrong, p. 169; Louis, p. 218; S. Jackson, p. 56; Dickson, Chapman's Journ. iii. p. 231; Ticknor, N. A. Journ. iii. p. 228; A. Smith, Amer. Journ. Med. Sci. xxv. p. 503.

[5] Edin. Med. and Surg. Journ. liii. pp. 82–3.

[6] Rochoux, *op. cit.* p. 552.

[7] A. Smith, Amer. Journ. Med. Sci. xxv. p. 503, and Essay, p. 15.

[8] Rept. pp. 160, 325.

[9] New Orleans Journ. vii. p. 43.

[10] Pp. 49, 82.

[11] Townsend, pp. 164, 194.

[12] Dickson, Eclectic Journ. iv. p. 110.

From all that precedes—from the fact that the ejection of black vomit is observed, occasionally at least, in other and diversified complaints, and, on the other hand, that it fails to present itself in a large number of cases as regards the true nature of which there can be no difference of sentiment—even in many of those that terminate fatally—we cannot, as already stated, regard it as sufficient by itself to characterize the disease as true yellow fever, or coincide in sentiment with those who draw a line of demarcation between cases otherwise presenting the same or kindred phenomena founded on the occurrence of the discharge in some and its absence in others. But, while entertaining these views, every one conversant with the disease from personal observation, and who has made himself acquainted with the results obtained in various parts of yellow fever regions, whether in tropical or temperate latitudes, is aware that the black vomit occurs much more frequently in true yellow fever than in any other form of febrile or other complaints. Indeed, though, strictly speaking, rather a peculiar termination than a symptom of the disease, since it does not occur till late in the attack, and even then only in a certain category of cases, yet these, owing to the malignancy and usual fatality of the disease are so numerous, and the occurrence of the discharge among them so common, that the black vomit may be regarded not strictly as pathognomonic of the disease, but as a highly useful diagnostic sign. Indeed, there can be no doubt that when it presents itself in more than a few isolated cases, more particularly when it is associated with other symptoms clearly appertaining to the fever, or when, in the absence of these, it occurs during the existence of an epidemic, it stamps the disease with a character which prevents it from being mistaken for any other, and affords us one of the most useful means for drawing a line of demarcation between cases in which it is observed, and others which prevail at the same time, but run their course to recovery or death without exhibiting it.

Not only is the black vomit a very frequent attendant on yellow fever during life; but it is almost constantly found after death in the cavity of the stomach, of the duodenum, or of some portions of the intestinal tube. We have already seen that it is not unusually found there, especially in the former organ, in cases in which it was not ejected during the course of the disease, and it seldom happens that the same result is not obtained when such ejection has taken place. It is recorded by almost every writer who has devoted attention to the pathological anatomy of the disease; by some of whom it is represented as of very ordinary, by others as of constant occurrence. Dr. Blair remarks that black vomit in the stomach is the rule, its absence the exception.[1] Dr. A. Smith, of Texas, met with it in all the autopsies he made with, perhaps, a single exception.[2] Dr. Webb says: "I think I was present at more than one hundred *post-mortem* examinations of subjects who died of yellow fever at Barbadoes. The stomach was distended with gas, and

[1] P. 102.

[2] Trans. of N. Y. Acad. of Med. i. p. 64.

contained more or less black vomit. I do not recollect having been present at the opening of any body when black vomit was not found."[1] And other investigators, whether in this city, during the various fearful epidemics by which it has been visited, from 1793 to the present year, in other parts of the United States, in Europe, in the West Indies, the southern coast of this country or Africa, have made similar statements.[2]

The black vomit usually makes its appearance at the opening, or about the middle of the second stage of the disease; sometimes at the decline of the first stage; occasionally, but rarely, during the first or febrile paroxysm. From this, it will be easily perceived by those who are aware of the ordinary duration of those stages which, though varying somewhat in different cases and in different seasons, do not do so very materially, that the most usual period of its appearance is about the fourth or fifth day. In some instances it occurs earlier, and sometimes later. It has, in some cases, as Dr. Dickson and others remark, shown itself within twenty-eight or thirty hours from the commencement of the attack,[3] or even sooner. The second day is not unfrequently mentioned as that of its appearance.[4] On the other hand, we find it sometimes retarded as late as the seventh, eighth, or ninth day, or even much beyond.[5] The following table, showing the number of cases out of a total

[1] Second Report on Quarantine, p. 366. Lond. 1852.

[2] Physick, Med. Repository, v. p. 130; Ib. in Rush, ii. p. 92; Ffirth, pp. 36, 37; Caldwell, Fever of 1805, p. 99; Parrish, Med. Museum, iii. p. 88; Lowber, ib. v. pp. 19, 20, 21, 22; Lawrence, Phil. Med. and Phys. Journ. x. pp. 4, 7, 9, 10, 11, 258; Kelly, Am. Journ. xiv. N. S. p. 282; Harrison, New Orleans Journ. ii. p. 139; Waring, p. 49; Nott, Am. Journ. N. S. ix. p. 280; Valentin, p. 180; Gros, p. 19; Chabert, p. 13; Fever of New Orleans in 1820, p. 10; Ticknor, North Amer. Journ. iii. p. 229; Heustis, Topog. of Louisiana, p. 22; Dickson, Philad. Med. and Phys. Journ. iii. p. 256; Ib. xiv. p. 206; A. Smith, Am. Journ. xxv. p. 504; Hicks, New Orleans Journ. v. p. 221; Slade, ib. i. pp. 86, 94; Hayne, Charleston Journ. vi. p. 342, 628, &c.; Townsend, pp. 190, 191; Dalmas, p. 15; S. Jackson, p. 56; Arejula, pp. 418, 426, 427; Louis, pp. 80, 81, &c.; Pariset, p. 418; Palloni, p. 11; Burnett, p. 243; Fellowes, 68; Vance in Pym, p. 6; O'Halloran, pp. 189, 192; Audouard, pp. 151, 152; R. Jackson, Fever of Spain, p. 88; Imray, Ed. Med. and Surg. Journ. liii. pp. 82–3, 90; Ib. lxiv. p. 330; Copland, iii. p. 161; Blair, p. 92; Arnold, pp. 317, 318; Osgood, p. 12; Vatable, p. 348; Gillespie, p. 70; Pugnet, p. 265; Ralph, Ed. Med.-Chir. Trans. ii. p. 80; J. Clark, p. 19; Catel, p. 12; McArthur in Johnson, p. 349; Frost, Med. Repos. xiii. p. 253; Hunter, p. 161; R. Jackson, Sketch, i. pp. 79, 114; Ib. Treatise, p. 265; Dubreuil, Journ. Universelle, viii. p. 329; Caillot, p. 167; Keraudeen, p. 7; Savarési, p. 461; Hacket, Med.-Chirurg. Rev. xvi. p. 290; Evans, pp. 215, 216; Cyclop. of Pract. Med. ii. p. 275; Rufz, p. 18; Bally, p. 194; R. Armstrong, p. 169; Maher, pp. 845, 884; Grant, p. 47; Bone, pp. 26, 27; Bancroft, p. 24; Belcher, Ed. Med. and Surg. Journ. xxiii. p. 251; Furlong, Med.-Chirurg. Journ. xxv. p. 290; Boyle, p. 234; Rochoux, pp. 351, 532; Dict. des Sci. Med. xv. p. 341; Levacher, p. 76.

[3] Dickson, Am. Journ. ii. p. 73; Kelly, ib. xiv. p. 384.

[4] Imray, Ed. Med. and Surg. Journ. liii. p. 83.

[5] Bone, p. 3.

of three hundred and sixty-six, in which the symptom was observed on different days of the disease in Demerara, during the epidemic of 1837,[1] will apply with sufficient exactness to other places and other seasons, to be used in illustration of the subject before us:—

Day of the dis.	1	2	3	4	5	6	7	8	9	10	11	12	13	Uncertain.	Black vomit doubtful.
No. of cases	2	5	32	76	89	83	26	15	10	7	2	2	1	5	11
Rate per ct.	0.09	0.24	1.72	3.67	4.40	4.10	1.25	0.72	0.48	0 31	0.09	0.09	0.04	0.24	0.52

The black vomit has, from the earliest period in the history of the yellow fever, been viewed by professional and unprofessional observers, as a highly unfavourable sign. It is more so than the jaundiced condition of the skin, being, in that respect, according to Dr. Blair, who has paid much attention to the subject, in the proportion of 75.68 to 46.23. Indeed, the ejection of black matter from the stomach, or its effusion in that cavity, has usually been found to portend, with almost unerring certainty, the approach of death. Such has been the case in some of the epidemics of our city, as also in those of other parts of this country, Europe, and tropical regions, when the discharge upwards of even a small portion of the fluid has proved with few, if any exceptions, the precursor of a fatal issue.[2] In other places and seasons, perhaps also in the hands of other physicians, the black vomit has not been found so universally to indicate an unfavourable issue. At all times, and even during the most fearfully malignant visitations of the disease, a few cases present themselves in which the patients escape after throwing up the justly dreaded matter; while on some occasions the number of recoveries, notwithstanding the advent of the discharge, is comparatively large. Vatable says, in reference to the epidemic of Guadaloupe in 1826: "We have seen men leave and rejoin their regiments (corps) who, during several days, had thrown up the matter of black vomit."[3] Dr. Ralph saw three cases of recovery among the sick of his regiment at Barbadoes in 1817.[4] Dr. Dickson remarks that the black vomit is not always fatal;[5] and, in another publication, states that in 1827, at Charleston, the number of recoveries after the discharge was great beyond all former example.[6] Five per cent. of black vomit cases, as we are told by Dr. Lewis,

[1] Blair, p. 82.

[2] Rush, iii. p. 61; iv. p. 34; Currie, p. 39; Caldwell, Fever of 1805, p. 85; Parrish, Med. Museum, iii. p. 192; S. Jackson, p. 56; Lining, ii. p. 429; Ashbel Smith, p. 32; Shecut, p. 120; Merrill, New Orleans Journ. viii. p. 6; Gros, 17; Fever on board the Macedonian, p. 29; Rouppe, pp. 408, 411; Imray, Ed. Journ. liii. p. 82; Ib. lxiv. p. 329; Desportes, i. p. 199; Lempriere, ii. p. 68; Rochoux, p. 280, &c.; Evans, p. 248; Valentin, p. 168; Bally, p. 279; Musgrave, Med.-Chirurg. Trans. ix. p. 134; R. Jackson, i. p. 171; Palloni, p. 85; Pariset, pp. 448. 449; R. Arnold, p. 321; Ferguson, Recol. p. 125; Cortel, p. 11; Anderson, p. 7; Audouard, p. 7.

[3] An. Marritimis, p. 350. 1827.

[4] Edinb. Med.-Chirurg. Journ. ii. p. 73.

[5] Phil. Med. and Phys. Journ. xiv. p. 206.

[6] Am. Journ. ii. p. 73.

recovered at Mobile in 1843.[1] In reference to the epidemic of Charleston in 1852, Dr. Cain writes to me: "There have been quite a number of recoveries after black vomit in this epidemic." Of fifty-nine cases which recovered on that occasion in the city ward of Roper Hospital, under the care of Drs. Huger and Post, two threw up black vomit, and nine got well after passing it copiously by stool.[2] In his account of the epidemic of 1793, Dr. Rush states that many recovered who had thrown up the black-coloured matter. Of 366 cases of black vomit mentioned by Dr. Blair as occurring at Demerara in 1837, out of 2,071 cases of the disease, only 277 died, giving the centesimal mortality stated above, viz. 75.68.[3] "Fifty-five soldiers affected with the gastric disease called yellow fever, Dr. Bone says, were received into the Naval Hospital, Barbadoes, in 1821; 17 of these vomited; 33 did not vomit; 11 of them died; and of these, 6 vomited and 5 did not vomit."[4] Cases of recovery after the discharge of black vomit were not unfrequent in the yellow fever which has lately prevailed epidemically on the coast of Brazil. Three occurred on board of a single ship, the Tweed. Others in another English vessel, the Cormorant.[5]

"Mr. Amiel, who witnessed three yellow fever epidemics at Gibraltar, states that he met with two instances in children, where recovery took place after the appearance of black vomit. Surgeon Collow, of the 84th regiment, says, in his official report to the Army Medical Board, relative to the yellow fever, as it appeared in his corps at Fort Augusta, Jamaica, in the year 1827, that the black vomit 'is not invariably fatal; examples, more than one, in my regiment, are now living.'" Dr. Bone, deputy inspector of hospitals, who has had an experience of many years in the West Indies, is very precise upon this point, in an official report relative to an epidemic which prevailed at Barbadoes, in 1821. He there not only refers to some cases in which recovery took place after having vomited black ("China ink-coloured") fluid, as well as flaky brown blood, usually (according to him) the precursors of the real black vomit, but enters into minute details relative to two cases ultimately terminating favourably, when the fluid ejected possessed the most unequivocal characters."[6]

In the Havana, as we learn from Mr. Maher, it was found by Dr. Belot, whose experience in the yellow fever, obtained in private and hospital practice, is very ample, that while the brownish matter, containing flocculi, is invariably an indication of mortal issue, the chocolate-coloured matter, which, like the former, passes under the name of black vomit (and which corresponds to the China ink-coloured matter, mentioned by Dr. Bone, and considered by him as the precursor of the real black vomit), is not necessarily so.[7] Dr.

[1] New Orleans Journ. iv. p. 159.
[2] Simons, Charleston Journ. viii. p. 368.
[3] Blair, p. 82.
[4] Bone, p. 4.
[5] Dr. W. McKinley, Edin. Monthly Journ. Oct. 1852, pp. 335, 337.
[6] Cycl. ii. pp. 273, 274.
[7] Annales Maritimes, p. 848.

Rufz met with one instance of recovery, at Martinique, in 1838, after the occurrence of real black vomit.[1] At Barcelona, some few recovered,[2] and cases of a similar kind are alluded to by Alex. Hosack,[3] E. H. Smith,[4] Desportes,[5] Harrison,[6] and R. Jackson.[7]

It may be remarked that, in reference to the degree of importance to be attached to the black vomit in a prognostical point of view, much depends on the peculiar appearance and physical properties of the fluid, and the quantity in which it is ejected. We have seen that, according to Dr. Bone, recovery may take place so long as the discharge consists of China ink-coloured fluid, as well as flaky brown blood, and that Dr. Belot entertains hopes so long as the patient throws up only a chocolate-coloured matter. Much to the same effect are the remarks of Dr. Lewis, of Mobile, who found that so long as the black vomit is raised in small quantities, thick and pasty, and is thrown up with a natural mucus, there is some hope of recovery. When, on the other hand, the fluid is thin and black, and contains the coffee-ground sediment, its appearance should always be viewed as a sign of fearful omen.[8]

In cases of recovery, the discharge is sometimes protracted a very long while, and even in some cases continues amid a train of phenomena, with which we could scarcely have anticipated to find it associated. In a case stated by Dr. Logan, and referred to by Professor Dickson, of Charleston, black vomit was thrown up during the convalescence of a juvenile patient, whose recovery did not seem at all retarded by the circumstance or its cause. In one case, under the care of Dr. Prioleau, the patient lived after ejecting the black vomit for fourteen successive days.[9] I have heard of a case in which the discharge continued, though in very small quantities, for twenty-one days. The patient recovered. These, however, are unusual cases. More commonly, convalescence is soon established, and the discharge ceases. In a few fatal cases, the patient lingers a few days after the appearance of the black vomit. One, mentioned by Dr. Dickson, lived ten days after its occurrence. But in the majority of instances, life is not long protracted. The patient is sometimes carried off in less than twenty-four, sometimes in two or three hours.

In some fatal instances, the discharge of black vomit comes on unexpectedly, and is almost immediately or soon after followed by symptoms of impending dissolution. During the months of July, August, and September last, this was found to occur in several of the cases which fell under my personal observation. The patients, after appearing to be doing well, during the

[1] Report by Dr. Chervin, p. 16.

[2] Audouard, F. J. de Barcelonne, p. 64; Periodico de la Soc. de Salud. Publica, p. 265.

[3] Essay on Yellow Fever, p. 15.

[4] Webster's Collection, p. 120.

[5] Maladies de St. Domingue, i. p. 222.

[6] N. O. J. ii. p. 135.

[7] Fever of the South Coast of Spain, p. 121.

[8] New Orleans Journ. iv. p. 159.

[9] Dickson, Am. Journ. ii. p. 73.

deceptive period of the metaptosis or remission, or presenting few symptoms portending immediate danger, suddenly threw up more or less of the matter, and were soon attacked with convulsions or other phenomena of like import.

In other instances, the first effect of the ejection seems to be of the most beneficial kind. On its occurrence, the feelings of the patient improve; some of the more unpromising symptoms mend; the restlessness diminishes; the inability to take food, the tension and distress at the epigastrium and abdomen generally subside; the tongue assumes a cleaner and more healthful appearance, and the patient often experiences a singular tranquillity of body and mind.[1] Dr. Blair, who has, in an especial manner, pointed out these circumstances, remarks, that when, with sudden improvement of the tongue, and other symptoms, there exists dirty or other discoloration of the surface, and at the period of the disease when black vomit might be expected, then succussion will sometimes detect the presence of the effused fluid before vomiting occurs.[2] But, whether the detection be made or not, effusion, under these circumstances, may justly be suspected or feared at the time or very soon after, unless accompanied by other changes of a favourable character; the connection between it and the sudden amendments in question being, as already stated, frequently noticed.

The discharge of black vomit, contrary to what might have been anticipated, is not necessarily attended with debility of mind and body. So far from this, experience in this city and elsewhere teaches that, in not a few cases, the retention of the muscular power and intellectual functions, self-possession, and courage is remarkably great, at a time too when every other symptom portends the approach of death. This occurs often in the last stage of the disease, when the latter has run its usual course, and also in what has been denominated walking cases, in which the inflammatory or pyrexial stage is wanting, and the disease, while presenting the remarkable feature in question, passes at once to the malignant stage. Dr. Harrison remarks, that "some will even get out of bed and walk about, declaring they are perfectly well, and wish to dress themselves."[3] The following statements will serve to illustrate this. The first, for which we are indebted to Dr. Dickson, is interesting: "I saw a patient in our Marine Hospital, in 1817, walking from ward to ward with a vessel under his arm to receive the black vomit, which he threw up from time to time. He continued this practice for ten days, until within fifteen minutes of his death, which took place suddenly and altogether unexpectedly to the poor fellow; he had always expressed the most cheerful and confident expectation of recovery, notwithstanding this usually much-dreaded symptom."[4]

[1] Currie, Fever of 1793, p. 26; Lewis, New Orleans Journ. iv. p. 159; Daniel, Fevers of Savannah, p. 72.

[2] *Op. cit.* p. 80.

[3] New Orleans Journ. ii. p. 133.

[4] Philadelphia Med. and Phys. Journ. xiv. p. 206.

A man came into the office of a physician, in New Orleans, and said that his friends had persuaded him to consult a physician, although he himself believed there was no occasion for it; whilst conversing, he asked for a basin, and threw up a large quantity of black vomit.[1] Dr. Townsend, in his Essay on Black Vomit, mentions the case of an individual who walked about two hours before his death while vomiting up the fluid in question. (P. 5.) Dr. Dashiel relates a case in which it unexpectedly appeared whilst a man was getting shaved in a barber shop, at Vera Cruz. Dr. Fenner, from whom I derive the above fact, says: "I myself have seen a man lying quietly in his bed at the Charity Hospital (New Orleans) *reading a book*, while the fatal black vomit was upon him. He seemed to be surprised at the minute inquiries I made about his case, and as I turned, asked if I thought *he was in any danger?* I gave him an equivocal answer, and left him in blissful ignorance. He resumed his story, and I saw him no more. The next morning he was dead."[2]

An officer said to Dr. Ferguson: "You see, I am posting fast to the other world, and you cannot prevent it; but I am as easy as if I was in a post-chaise." Another, the governor-general of the West India and Leeward Colonies, "when he contemplated that harbinger of death, the black vomit, pouring from his stomach, on the evening preceding his death, rose from his couch, in full possession of all his acumen, to execute some legal deeds of importance, declaring at the same time, in reply to my dissuasions, he could with equal facility have drawn out a plan for military operations."[3]

In many cases the ejection of the black matter has been preceded by much nausea and distress at the stomach, as well as by much vomiting. In such instances the substances thrown up consist usually, at first, of the fluids swallowed, mixed or not with more or less bile. These are followed by mucus containing particles of flocculi, resembling bees' wings, and soon after by the fully-formed fluid. In some instances this gradation is not observed, and the patient, after vomiting at first the contents of the stomach, ejects suddenly and unexpectedly a larger or smaller quantity of well-constituted coffee-ground matter. In some few cases the vomiting is preceded, as Dr. Musgrave has observed, and as I have also seen, by a wedge-like sensation at the cardia, or as if a marble were sticking there. I do not know that this symptom has ever failed to be followed by the ejection in question. But while such is usually the course noticed in respect to the antecedents of the black vomit, it not unfrequently happens that, prior to the discharge of that fluid, the patient had not been troubled with nausea or vomiting; that the stomach had retained everything swallowed—food, drink, or medicine—and that no burning sensation had been complained of before.[4]

[1] Kelly, Am. Journ. N. S. xiv. p. 280.

[2] Fever of New Orleans in 1847, New Orleans Journ, v. p. 211.

[3] Recollections of a Professional Life, &c. pp. 146–7.

[4] Musgrave, Med.-Chir. Trans. ix. p. 134.

The black vomit is sometimes preceded by the ejection of a white, ropy, acid fluid, which makes its appearance at the close of the second stage, and is sometimes discharged in considerable quantities, and with much relief to the symptoms. It is generally attended with considerable retching. This fluid was very frequently noticed during the epidemic of Demerara, in 1837, when it received the appellation of "premonitory," or "precursory" fluid, or "white vomit."[1] In a late epidemic at Barbadoes, referred to by Dr. Davy, the white vomit was not of unfrequent occurrence, though not so common as to arrest attention.[2] Osgood says that in some cases there is a vomiting, not of black matter, but of a watery substance, of a slimy nature, and with it whatever the patient may have lately taken of drink or medicine. (P. 12.) In many instances the substance preceding the black vomit is found copious and colourless. (Ralph, 66.) Cathrall[3] describes it as of the colour of whey or muddy water, and containing an acid in a free state (*Ib.* 9). Dr. Harrison states that in the stomach of an individual whom he dissected, at the New Orleans Hospital, he found no black vomit, but a whitish acid-smelling liquid, amounting to about half a pint.[4] Whether these liquids were similar to that described by Dr. Blair, we have no means at present to decide positively, though we may presume that they differed but slightly from it. In several of the cases of the disease which occurred among us during the preceding season, this white acid matter was ejected. In one instance, when a fair sample of it was obtained, it was thrown up on the fifth day of the attack, and forty-eight hours before the black vomit made its appearance. Dr. Blair found it to occur more frequently than the black vomit itself in the proportion of 417 of the former to 366 cases of the latter. The black vomit generally followed the precursory vomit; but many cases of death occurred after the latter only. The earliness of its appearance as antecedent of black vomit is shown by the following table:—

Day of disease	1	2	3	4	5	6	7	8	9	10	11	12	13	Unascertained.
No. of cases in each day	10	66	103	95	72	37	21	8	1	0	1	2	0	1

The period at which this whitish fluid is ejected, its acidity, and the possibility of its presence in the stomach at the time of the formation of the black vomit, and the result of experiments made with it, and to which I shall advert on another occasion, lead to the supposition that it plays an important part in the formation of that matter.

Except in some cases, when the ejection from the stomach is easily effected from beginning to last, the expulsive efforts of that organ are of a different kind in the first and last stages of the yellow fever. At first, there is violent

[1] Blair, *op. cit.* p. 80. [2] Notes on Blair, ib.

[3] Mem. on the Analysis of the Black Vomit, p. 4; Fever of 1793, p. 9.

[4] *Op. cit.* p. 148.

retching, straining, suffusion of the face, and spasms of the recti muscles. But when black vomit is established, these violent, distressing, and often painful efforts cease; and as Dr. Blair remarks, the stomach seems to act alone. It propels its contents by an effort of its own, and apparently independent of extraneous aid, and the matter is, as it were, spouted out, or gulped up rather than regularly vomited—without straining or effort on the part of the patient—almost without his consciousness, and apparently in an involuntary manner;—the whole being the result of a jerk or slight convulsive effort, as effected by a sudden contraction of the stomach, diaphragm, and abdominal muscles; or it would almost seem of the stomach alone.[1] The patient, says Dr. Blair, will speak to you, lean his head over the bed, eject his mouthful, or basinful of black vomit, and resume his conversation with scarcely any interruption. Another writer, Dr. Evans,[2] says: "The patient rarely lifts his head off the pillow; but, turning it slightly to one side, by a sudden effort, but without straining, casts a stream from him. The stomach fills again rapidly, and the same phenomena are repeated."

The first emission of this dreaded fluid frequently takes place suddenly and without warning. It is in such cases unpreceded by nausea or the distress which usually accompanies vomiting, and brought on by a slight change of posture on the part of the patient, or it follows hiccough, or an effort to discharge flatus from the stomach. The subsequent discharges occur much in the same way; but whether so or not—whether preceded by nausea or otherwise—the emission of the black vomit does not take place in the manner of ordinary emesis. The muscular motion, and the sounds accompanying the ejection are peculiar. There is no violent retching; a loud or hollow sound is heard, caused apparently by a hiccough mingled with a cough. These facts are familiar to all who have witnessed the disease, and have been pointed out by numerous writers.[3]

The matter ejected sometimes comes up by mouthfuls, as if in rumination, not unfrequently in a manner which Dr. Daniel, of Savannah, has not improperly likened to that by which a dyspeptic, or a woman far advanced in pregnancy, spits up offending matter.[4] At other times, perhaps more generally, the fluid is, as it were, pumped up very suddenly, and propelled in a spout, as from an engine, to a very considerable distance. Dr. Rush, in his account of the epidemic of 1793, remarked that the contents of the stomach were sometimes thrown up with a convulsive motion, that propelled them in a stream to a great distance, and in some cases all over the clothes of the

[1] P. 80.

[2] P. 248.

[3] R. Armstrong, p. 169; Lewis, New Orleans Journ. iv. p. 159; Copland, iii. p. 154, Am. Ed.; R. Jackson (Spain), pp. 73, 83, 101; R. Jackson, Sketches, i. p. 72; Barry in Boyle, p. 272; Wood, i. p. 301; Harrison, p. 132; Gros, p. 11; Cartwright, Med. Recorder, ix. p. 10; Imray, Edinb. Med. and Surg. Journ. pp. 53, 82; Dickson, Philad. Med. and Surg. Journ. iii. 256; Ticknor, North Amer. Journ. iii. 228; Blair, p. 80; Bone, on Yellow Fever, p. 3.

[4] Fevers of Savannah, p. 72.

bystanders.[1] Dr. Harrison has seen it, in the New Orleans Charity Hospital, thrown entirely over the bed of the next patient, and fall on that adjoining;[2] and similar results have been found to obtain by every one who has observed the disease.[3]

In the yellow fever of this and other cities of the United States, as also in that of Europe and tropical regions, the quantity of the black matter ejected from the stomach, though at first small, becomes soon, in some cases, very large. Dr. Currie, in his account of the fever of 1793 (p. 26), speaks of the quantity thrown up as being enormous. The quantity, says Dr. Cathrall, "sometimes becomes so much augmented, that I have known one gallon vomited in forty-eight hours, besides a considerable quantity, which was of a much thicker consistence, that was discharged by the bowels.[4] Dr. Lowber states that, in a case which came under his observation, the stomach contained, upon admeasurement, thirty-two ounces of black vomit.[5] Dr. Ffirth states that the fluid is thrown up by pints, quarts, and even gallons.[6] In a case mentioned by Dr. Townsend, of New York, the quantity found in the stomach amounted to two quarts.[7] The disparity between the quantity of the black vomit thrown up and that of the fluids swallowed, is often noticed by the patients themselves. Dr. Bone informs us that an officer, who died of the yellow fever in Barbadoes, in 1821, remarked, that a pint of fluid taken produced a quart of black vomit in no time.[8] Dr. R. Jackson states that the discharge is "enormously great, so far exceeding the quantity of what has been taken down in drink, as if the stomach had become the outlet of all the fluids contained in the body."[9] The quantity of fluid ejected in most cases, says Sir William Pym, who saw the disease in both hemispheres, wonderfully exceeds the quantity drunk; indeed, all the fluid in the body seems to be pouring into the cavity of the stomach; for when it has, to all appearance, been emptied several times, and the patient thinks himself relieved from any painful straining, he is, in the course of a few minutes, without having tasted drink, under the necessity of having recourse to the basin.[10] Dr. Ticknor speaks of it as astonishingly great[11]—Gillkrest, as considerable[12]—Archer, as sometimes incredible;[13] and Lempriere,[14] Ralph,[15] Musgrave,[16] J. Clark,[17] A. Hosack,[18] Evans,[19] Barry,[20]

[1] Works, iii. p. 60.
[2] New Orleans Journ. ii. p. 132.
[3] Evans, p. 248; Blair, p. 80.
[4] Trans. of Phila. Philos. Soc. v. p. 118; Ib. Mem. p. 5.
[5] Medical Museum, v. p. 24.
[6] A Treatise on Malignant Fever, &c. 1804, p. 38.
[7] Fevers of New York in 1822, p. 191.
[8] Essay on Yellow Fever, p. 4.
[9] Sketches, i. p. 171.
[10] Bulam Fever, p. 230.
[11] N. A. Med. and Surg. Journ. iii. p. 228.
[12] Cyclop. ii. p. 272.
[13] Med. Record. v. p. 68.
[14] Diseases of the Army, &c. ii. p. 65.
[15] Med.-Chir. Trans. of Edinb. ii. p. 67.
[16] Med.-Chir. Trans. ix. p. 134.
[17] Fever of Dominica, p. 14.
[18] Hist. of the Yellow Fever of New York in 1795, p. 14.
[19] *Op. cit.* p. 248.
[20] Boyle, Med. Hist. Account of the Western Coast of Africa, p. 272.

Wood,[1] Harrison,[2] Merrill,[3] R. Arnold,[4] and others, have dwelt with greater or less emphasis on the same fact. The vomiting in all such cases is provoked by swallowing something, either fluid or solid; but it is often the effect of the mere distension or irritation of the stomach produced by the matter itself; or is excited by a change of position in bed, by sitting, or standing up, and, according to Dr. Blair, by the *act of falling asleep.* (80.)

When once established, the black vomit very usually continues, without considerable interruption, and is brought up at short intervals, every time nausea and vomiting are excited by any of the aforesaid causes. In some cases, however, especially when it shows itself early, it has been found to intermit, nothing coming up for hours but the medicines and nourishment taken.[5] Dr. Dickson has seen it cease for several days;[6] and there are not wanting cases to show that it has occasionally ceased entirely, the stomach retaining everything for some time before death.[7]

The black vomit, notwithstanding its name, is rarely of a black colour. As seen in this city, it is more frequently of a dark-brown, bister, chocolate, or umber hue. In some instances the colour approaches to a dark slate, or to a muddy claret. It is of two kinds. The one consists of a number of dark flaky particles, which have been not unaptly compared to butterfly or bees' wings, and assume gradually the appearance, with more or less distinctness, of the grounds of coffee, of soot, or finely powdered charcoal, floating in a quantity, more or less considerable, of thin glairy fluid bearing a slight resemblance to a weak infusion of flaxseed or green tea. This latter fluid, when filtered, differs slightly in colour, being limpid like water, of a deep brandy or rum colour, yellowish or light green. The aforementioned flakes or striæ are at first, or throughout in the milder forms of the disease, limited in point of number, and of a light or grayish slate or chocolate tinge. But as the disease advances, and especially in the more malignant cases, they increase in number, and become darker and darker until the whole appears uniformly blackish or even black. The fluid when completely formed, though homogeneous in appearance when discharged, separates soon on standing into two parts; the one consisting of the flaky or coffee-ground matter already mentioned, and the other of the fluid in which they were held in suspension. This flaky matter, which in some cases seems collected in masses of greater extent and entangled in mucus, and at others is divided very minutely and equally mixed, after subsiding to the bottom of the vessel, either in distinct particles or in the form of a dark powder, is readily incorporated with the fluid by the least agitation. When kept a long while, they become perfectly separated, but when shaken and reincorporated, show less disposition to separate again. In some instances, the quantity of the

[1] Pract. of Medicine, i. p. 301.
[2] N. O. Journ. ii. p. 147.
[3] New Orleans Journ. viii. p. 6.
[4] Am. Journ. N. S. iii. p. 319.
[5] Musgrave, Med.-Chir. Trans. ix. p. 134.
[6] Phila. Med. and Phys. Journ. xiv. p. 206.
[7] Musgrave, *loc. cit.*

fluid portion is, from the outset to the close of the attack, very large compared to the solid particles. In others, the reverse is the case; the substance vomited, though presenting all the characteristic features of the coffee-ground or granular matter, being almost or completely deprived of its fluid attendant. In a case I had occasion to see in July last with Dr. Keating, the black vomit presented that character. In another case, the proportion of solid matter in the fluid thrown up was very small; while on dissection, sixteen hours after death, the stomach was found to contain about six ounces of thick coffee-ground or granular matter with scarcely any admixture of fluid.

The other form of the black vomit is more homogeneous in character, and presents the appearance of dark-coloured inspissated mucus or thin tar, or of a thick mixture of molasses and water. In some instances, the matter vomited consists of grumous or dark-coloured blood, fluid or coagulated, without admixture of coffee-ground particles or pale fluid;[1] while in others again, the matter described above is mixed with coagula of more or less pure blood; or, failing to maintain the character above described, assumes more or less the appearance of blood. In some instances, the discharge towards the termination of the disease becomes nearly sanguineous.

These peculiarities and modifications have been noticed in all our epidemics. They are referred to by Dr. Jackson in his *Account of the Fever of* 1820, p. 81, and not unfrequently presented themselves during the recent outbreak of the disease among us.

Such are the appearances presented by the black vomit in the yellow fever of this city. If we now turn to the descriptions given of it by writers who have observed the disease in other parts of the United States, in Europe, and tropical climates, we shall find them to differ but slightly and on unimportant points from that which precedes.

According to Dr. Hosack, the black vomit, as observed in New York, consists of a dirty-brown water, with a sufficiency of bloody turbid matter, which sometimes falls to the bottom of the vessel, or floats on the surface of the fluid. "This matter, I have observed to exhibit itself in different forms: 1. In flakes like tinder, floating on the fluid discharged. 2. It appears to be discharged in the form of blood and mucus, which gradually subsides. But the more common evacuation is that of the third—the coffee-ground discharge, and which immediately falls to the bottom of the vessel, precisely resembling the appearance of coffee-grounds."[2] At Norfolk, Valentin found the matter vomited to assume a brownish hue similar to coffee-grounds, then to become blackish and of thicker consistence, sometimes resembling tar, or a mixture of soot and water.[3] Of the characteristic marks of black vomiting, Dr. Smith, of Galveston, says: "They are dark flocculi swimming in a fluid, varying from

[1] Cathrall, On Black Vomit, pp. 4, 6, 7; Rush, Yellow Fever of 1793, p. 61; Wood's Practice, i. p. 301; Monges, N. A. Med. and Surg. Journ. ii. p. 57.

[2] Hosack's Practice, 389.

[3] Traité de la Fièvre Jaune, 167.

a brownish, slate-coloured, or whey-looking liquor to one resembling a strong decoction of coffee. In the first portions vomited and in the milder forms, the flocculi are generally few and minute. In more aggravated cases, they are very abundant, and present every variety of shape, like fine powder, and stilliform, linear, or in shreds. In the more malignant cases, the black vomit approaches in appearance to dissolved blood. The flocculi subside very slowly to the bottom of the fluid, and the latter is seen to be of a light-greenish or whey-coloured tinge. Sometimes, however, the flocculent portion swims on the surface, and in appearance is not unlike the inside of the dry mushroom called puff-ball. In portions of black vomit which had been kept a few days, the flocculi which at first had subsided slowly arose and swam on the surface of the fluid. The common comparison of black vomit to a turbid decoction of coffee, probably conveys the best idea of its usual appearance."[1] Gros compares it to the lees of ink; Girardin, to India-ink dissolved in water, and keeping in suspension membranous shreds or flakes.[2] Dr. Middleton Michel, of Charleston, whose microscopical researches on the black vomit are entitled to high praise, calls attention to the diversity of colour of the fluid as observed by him. "Though generally reddish-black, it often presented a brown, reddish or blackish-brown, and sometimes claret colour." The fluid, obtained from a patient who ejected large quantities of it and ultimately recovered, was bright red, recognizable as pure blood with black flocculi in the sediment. In another case, it was of a chocolate colour with a brownish residuum. "Some obtained from my own patients resembled a strong infusion of senna, holding in suspension the ordinary black clots and granules; others, even in a state of rest, were more like a solution of bismuth and India-ink; some again were perfectly black." The intensity of colour, Dr. Michel farther remarks, is much influenced by rest or motion, as it acquires a denser shade whenever the fluid is agitated, and the granules, flocculi, and coagula are made to float; on the contrary, these particles, when the liquid is at rest, settle at the bottom, being specifically heavier than the former, leaving the supernatant liquid comparatively clear, sometimes transparent as serum. "This is not always the case, however, as I have seen the solid portions of the same sample equally divided into such as formed a sediment and such as floated on the surface. The quantity which may be produced and ejected in a given time materially affects the colour, this being of a brighter red whenever the fluid is thrown up in abundance until it frequently amounts to pure blood; whereas, the dark-

[1] A. Smith, Am. Journ. xxv. 503.

[2] Moultrie, p. 11; Lewis, N. O. J. iv. p. 159; Dickson, Am. Journ. ii. p. 72; Ib. Philad. Med. and Phys. Journ. xiv. p. 215; Nott, Am. Journ. N. S. ix. p. 281; Simons's Address, p. 30; Davidge, 104; Harrison, N. O. J. ii. p. 132; Kelly, Am. Journ. N. S. xiv. 378; Drysdale, Med. Mus. i. 136; Dalmas, 8; Gros, 10; Girardin, 35; Cartwright, Recorder, vol. 9; Lining, 296; Ticknor, N. A. J. iii. 228; Townsend, 161, 164; Drake, Repos. xxi. 135; Seaman, Webster Col. 9; E. H. Smith, ib. 126; N. O. 1839, p. 331; Shecut, 120.

black and granular aspect with the coffee-grounds sediment, described as characteristic of black vomit, belongs particularly to the smaller portions which are early vomited."[1]

In 1828, at Gibraltar, the matter vomited in the last stage of the disease, or found in the stomach, appeared under the following forms: 1. Thin flakes or portions of a brownish-black colour, floating, like broken-up wings of a butterfly, in a glairy fluid or infusion of black tea. 2. A perfect resemblance to a mixture of soot and water, or to the contents of a coffee-pot when the clear part of the coffee has been poured off. 3. A homogeneous, intensely black substance, having a jelly-like consistence, and adhering in great abundance sometimes to the mucous coat.[2] Pym describes it as a brownish fluid resembling dirty water mixed with a dark-coloured, flaky matter which floats upon the surface, and at last a matter resembling coffee-grounds or thin pitch.[3] Others have alluded to its chocolate colour; all have compared it to a mixture of coffee-grounds, in a thin fluid, to the juices of the cuttle-fish, and referred to the flakes or filaments it contains.[4] Dr. Bone, Deputy Inspector of Hospitals, who, it would appear, paid particular attention to the character of the fluids ejected from the stomachs of persons labouring under the yellow fever, and the results of whose observations on this and other subjects connected with the disease, originally presented in a report dated Barbadoes, 1822, are contained in an inaugural dissertation by his son, speaks of a fluid like Indigo or China ink, brought up with some straining. A brown fluid, resembling urine in appearance; brownish black, not flaky, proceeding from the fauces and gums, and perhaps in some cases from the pulpy cardiac opening of the stomach; brown, flaky blood mixed with mucous matter—precursor of true black vomit; and lastly, true black vomit, which is also blood altered in its passage through the vessels of the villous coats.[5] Another writer remarks that flocculi of lymph are first seen floating in a straw-coloured fluid. This is followed by the black vomit, "which, on being collected in a basin, appears of a chocolate colour. On allowing it to settle, a sediment resembling the grounds of coffee subsides to the bottom, while the supernatant fluid appears of a straw colour, resembling the serum of the blood. On shaking it together, it reassumes its primary chocolate appearance."[6] From all quarters, indeed, we learn that the matter thrown up from the stomach in the latter stage of the yellow fever is characterized as a mixture of fluid more or less limpid with a matter resembling coffee-grounds; that it usually presents dark-coloured flocculi swimming in the fluid; that it assumes at times

[1] Microscopical Researches on the Black Vomit of Yellow Fever, Charleston Journ. viii. 333.

[2] Gillkrest, Cycl. ii. 274, note.

[3] On the Bulam Fever, p. 230.

[4] Audouard, 60; Pariset, 417; Fellows, 54; Caisergue, 169, 170; Berthe, 87, 89; Blin, 6; Velasquez, 11; Palloni, 4; Proudfoot, Edinb. Journ. xxvii. 250; Pym, 35, 41; Boyd in Johnson, 300; Rochoux, 478; Jourdain, Annales de la Med. Physio. v. p. 260.

[5] Bone, Essay, p. 3; Gillkrest, *op. cit.* ii. 274.

[6] Belcher, Edinb. Journ. xxiii. 250.

the appearance of diluted soot; and that, in some cases, it is black as ink or tar; liquid or thick as thin pitch; that in others, it is of a brown-chocolate or a slate colour.[1] While such is the usual character of the matter ejected from the stomach, it is sometimes found everywhere, as with us, to consist of blood more or less pure, either red or black, and liquid or coagulated.[2]

About the time that the matter ejected from the stomach assumes the aforesaid appearances, or a short time before, the intestines give passage to a substance which often bears a strong resemblance, and, occasionally, is perfectly analogous to the former. The passages become brown or black with coffee-grounds, or something not unlike powdered charcoal floating in a serous fluid; or present the characters of molasses, or thin pitch, in regard to smoothness, tenacity, colour, or consistence; or of ichorous thin fluid, like the washing of flesh. In many cases, they contain streaks, or a large admixture of blood, and, at times, consist entirely of grumous blood. Intestinal discharges of this kind, bearing a strong analogy to the matter thrown up from the stomach, have been noticed in all places where the yellow fever has appeared.[3] In

[1] Halliday, 10; Dickinson, 135–8; Desportes, i. 199; Blane, Dis. of Seamen, 437; Hillary, 151; Dict. des Sc. Med. xv. p. 337; Pugnet, 356; Evans, 235; Bancroft, 12; Blair, 81; Madrid, 25–6; McArthur (in Johnson), 347; Vatable, 346; Moseley, 438; Savarési, 275; Gillespie, 42; Chisholm, i. 174; Jackson, Sk. i. 72; Osgood, 11; Gilbert, 66; Caillot, 28; Maher, 843; Bally, 226, 239; Rochoux, 280, 552; Dariste, 162; Imray, *op. cit.* 83; Jackson, Tr. 261; Pym, 230; Wilson, 182; Arnold, 10; R. Armstrong, p. 169.

[2] Lining, ii. 419; Pariset, 417; Evans, 247; Ralph, 68; Jackson, Sk. i. 3; Dariste, 165; Rochoux, 280, 552; Bally, 237, 239; Caillot, 19; Maher, 842; Archer, 67; Blane, 437.

[3] Moultrie, p. 11; Deveze, p. 24; Archer, Med. Recorder, v. p. 67; Currie, p. 26; Thomas, p. 84; Drysdale, Med. Museum, i. p. 136; Stone, New Orleans Journ. ii. p. 563; Kelly, Am. Journ. N. S. xiv. p. 374; Dalmas, p. 9; S. Jackson, pp. 60, 80; Bally, Typ. d'Am. pp. 230, 243, 248; Shecut, p. 120; Gros, 11; Girardin, pp. 24, 36, 56; Alexander Hosack, p. 15; Munson, Webster's Collection, p. 180; E. H. Smith, ib. 121, 122; Dickson, Chapman's Journal, iii. p. 256; C. Drake, Med. Rep. xxi. p. 135; Townsend, p. 158; ib. on Black Vomit, p. 5; Valentin, 171; Ticknor, North Amer. Med. and Surg. Journ. iii. p. 228; Louis, p. 232; Blin, p. 7; Fellowes, pp. 54, 55; A. Smith, Am. Journ. xxv. p. 502; Audouard, pp. 58, 61, 186; Caisergue, p. 169; Pym, p. 234; Berthe, p. 86; Gillkrest, Cycl. ii. p. 271; Boyd (in Johnson), p. 300; Velasquez (in Pariset on Fever of Cadiz), p. 11; Pariset, ib. p. 30; ib. Fever of Barcelona, pp. 422, 423; Report on Fever of New Orleans in 1839, p. 333; R. Jackson, Sketches, i. pp. 72, 94; Chisholm, i. p. 166; Lempriere, ii. p. 85; McArthur (in Johnson), p. 347; Osgood, p. 12; Imray, Ed. Journ. liii. p. 81; Bancroft, pp. 10, 12; Hillary, pp. 151, 152; Madrid, 2d part, p. 25; Gillespie, p. 42; R. Jackson (Disease of Jamaica), p. 262; Pugnet, p. 356; Vatable, p. 346; Desportes, i. p. 199; Blane on Seamen, p. 440; Belcher, Ed. Journ. xxiii. pp. 249, 251; Levacher, p. 73; Caillot, pp. 18, 19; Dariste, pp. 163, 165; J. Clark, p. 14; Rochoux, pp. 284, 480; Dickinson, pp. 128, 131; Arnold, p. 10; Evans, p. 257; Dict. des Sci. Med. xv. p. 337; Daniel, Fevers of Savannah, p. 72; Merrill, New Orleans Journ. viii. p. 6; Dickson, Am. Journ. ii. p. 73; Hicks, New Orleans Journ. v. p. 221; Slade, ib. i. pp. 86, 94; Hume, p. 200; Musgrave, Med.-Chirurg. Trans. ix. p. 107; O'Halloran, Fever

cases in which these discharges have occurred, as also in those in which they have not been noticed during life, the intestines—sometimes the large, but more generally the small—are found on dissection to contain a more or less considerable portion of the matter.[1] In some instances, it is found in the colon, while the small intestines, and even the stomach, are free from it. As Dr. Nott, of Mobile, well remarks, the matter discharged from, or found in the large intestines, is "frequently dried, resembling pickled walnuts pounded, and sometimes black scybala." Sometimes the black pasty matter is plastered over the whole surface of the small and large intestines, the black colour being more distinct as we approach the stomach. In one case, noticed by Dr. Nott, the whole canal, small and large, was coated with a thick tenacious matter of a purple colour, like blackberry jam, a compound intermediate between blood and black vomit.[2]

The black vomit has been stated to be odorless.[3] Nevertheless, Dr. Blair, while making that statement, remarks that, when distilled, the clear water that comes over has a peculiarly offensive odour, and that, if inspissated, the extract, although not fetid, nor pungent, nor exceedingly disagreeable, produces on some persons instant retching on being smelled. By others, however, a different result has been obtained. Cathrall found the fluid from which the flaky matter had been separated by filtration to have a "faint sweetish animal odour. The matter which remained on the filter had the same odour as the fluid (pp. 9, 10). Bally speaks of the fetid odour of the black vomit (p. 239). Deveze found it to possess an hepatic smell (p. 24). According to Barry, it had a raw, unpleasant odour, "so peculiar that, on entering the chamber, the state of affairs became immediately manifest."[4] Dr. Hester says that it has a fresh, disagreeable, nauseous smell.[5] Dr. F. M. Robertson says

of Xeres, &c. pp. 82, 127; Warren, pp. 15, 39; Chabert, p. 10; Amiel (in Johnson), p. 264; Arejula, pp. 172, 424; Waring, p. 51; Grant, p. 33; R. Armstrong, p. 179; Copland, iii. p. 158; Savarési, p. 271; Lining, Ed. Med. and Phys. Ess. ii. p. 423; Burnett, p. 247; Frost, Med. Repos. xiii. p. 32; R. Jackson, Fever of Spain, p. 76; Vance (in Pym), p. 63; Davidge, p. 103; Gilbert, p. 60; Halliday, p. 10; Simons, Charleston Journ. viii. p. 368; Paton, of Jamaica, Lond. Lancet, Oct. 1853; Am. Ed. p. 288; Ffirth, 28.

[1] Fellowes, p. 68; Bancroft, p. 24; O'Halloran, p. 189; Deveze, p. 63; Waring, p. 52; Louis, p. 102; Arejula, pp. 418, 421, 422, 426; Audouard, pp. 151, 152; Lowber, Med. Museum, v. pp. 19, 20, 21; Vatable, p. 348; Physick, Med. Rep. v. p. 130; ib. in Rush, iii. p. 92; Pugnet, p. 363; Blane, p. 94; Slade, New Orleans Journ. i. pp. 86, 88, 90, 94; Hayne, Charleston Journ. vi. pp. 346 to 628; R. Jackson, Sketches, i. pp. 79, 81, 89, 95; Gillkrest, Cyclop. ii. p. 276; Gillespie, p. 71; J. Clark, p. 20; Copland, iii. p. 161; Caldwell, Fever of 1805, p. 99; Savarési, p. 461; Bally, p. 197; R. Jackson, Fever of Jamaica, p. 265; ib. Fever of Spain, p. 88; Frost, Med. Rep. pp. 13, 253; Bone, p. 27; A. Smith, Am. Journ. xxv. p. 505; Kelly, Am. Journ. N. S. xiv. p. 378; Rochoux, pp. 360, 361, 535; Dalmas, p. 15; Levacher, p. 76.

[2] Amer. Journ. ix. N. S. p. 280.

[3] Blair, p. 81; Pariset, p. 419.

[4] Boyle, Topography and Diseases of Western Coast of Africa, p. 272.

[5] New Orleans Journ. x. p. 228.

the odour is peculiar.[1] Heastie states that the fluid has a fermentative odour.[2] Palloni says it was "materia fetidissima," (p. 5.) Dr. Evans remarks that there is now and then a strong and peculiar odour diffused through the apartment in which this matter is kept, which attaches itself to the furniture and even to the clothing of those who are exposed to it (p. 250). Levacher, who like Dr. Evans became familiar with the disease at St. Lucia, makes a similar statement, representing the odour as insipid and ammoniacal, and akin to that of gangrenous eschars, and, in illustration of the power possessed by that odour to attach itself to surrounding objects, cites a striking example of its being perceptible in a bundle of papers which had been left a few hours in a sick room (p. 83). Rochoux found it insipid, sometimes fetid (p. 552); and Audouard represents it as possessing a putrid smell (p. 7). In the various trials I have made on this subject, the black vomit, when recently thrown up, has usually been found to present the odour ascribed to it by Dr. Hester. In some few instances, the smell was very disagreeable, and almost fetid.

The ejection of the black vomit is generally preceded and accompanied by a sensation of soreness and burning in the stomach, along the œsophagus, and in the fauces and mouth; as well as anxiety and pain at the præcordia.[3]

From this and other circumstances the matter of the black vomit has been supposed to be of an acrid and excoriating or even corrosive nature.[4] But, although such may often appear to be the case, owing to the peculiar composition of the fluid, the state of the secretions, and the morbid sensibility and inflamed condition of the parts over which it passes, there is little doubt that, except under certain circumstances, the fluid is void of the excessive acridity ascribed to it.[5] In the experiments of Cathrall, it imparted, it is true, an acrid sensation when applied to the lips. But on the tongue it did not produce the least corrosive effect. Nor did it affect the skin of the hands and different parts of the body. Cats, dogs, and fowls were fed with it without any injurious, or, indeed, sensible effects on their digestive organs; while fumes, obtained by the evaporation of the matter, proved inoffensive to those who inhaled them.[6] Like the last-mentioned writer, Dr. Ffirth fed dogs and

[1] Examiner, Oct. 1839.

[2] Treatise on the Nature and Causes of Yellow Fever, p. 21.

[3] Rush, iii. p. 60; Kelly, p. 377; Evans, pp. 233, 256; Fellowes, p. 54; R. Jackson, i. pp. 68, 72; Barton, p. 10; Waring, p. 45; Blane, p. 438; E. H. Smith, p. 118; Bally, p. 216; Dickinson, p. 131; Girardin, p. 171; Campbell, of Charleston (in Watts), p. 250; Boyle, p. 203; Pym, pp. 228, 229; Ticknor, North Amer. Journ. iii. p. 222; Rochoux, pp. 289, 480; Grant, p. 31; Lewis, New Orleans Journ. iv. p. 159; Musgrave, Med.-Chirurg. Trans. ix. p. 134; Bryson, p. 66; Nott, Am. Journ. ix. p. 282.

[4] Th. Cooper; Discourse on the Connection between Chemistry and Medicine. Phila. 1818, p. 34; Dariste, p. 160; Dalmas, p. 8; Valentin, p. 166; Desportes, i. p. 203; Pugnet, p. 356; Gros, p. 10; Rochoux, p. 290; Girardin, p. 33; Dict. des Sci. Med. xv. p. 336; Nott, Amer. Journ. p. 282; Lefoulon, p. 49; Audouard, p. 6.

[5] Physick, Repository, v. p. 130. [6] Cathrall, pp. 20, 21, 22, 23.

cats with the matter of the black vomit, during days and weeks—he did more; he inoculated dogs with the fresh matter—subjected himself to the same operation—applied the fluid to the surface of a cut made on his arm, secured it there for two days by means of sticking-plaster, and repeated the experiment above twenty times in various parts of his body. He inserted the matter in his eyes—swallowed a large quantity diluted, or pure; but from these experiments no injurious effects ensued. When the matter was applied to wounds, very slight inflammation, sometimes though not always resulted, and the wounds healed kindly. In general, not more inflammation followed "than would have occurred had no black vomit been introduced." When it was dropped into the eye "it felt a little uneasy for about a minute; but produced no pain or inflammation. I have," says Dr. F., "frequently had cold water to produce the same effect." When swallowed, it produced no nausea or pain—no more effect, indeed, than if so much water had been taken.[1] Dr. Chervin, who on several occasions swallowed a quantity of the matter of black vomit, felt no inconvenience from it.[2] Neither did Dr. Guyon, in the numerous experiments he made at Martinique in 1822.[3] Dr. McKinnal, of the British navy, for certain reasons which need not be stated here, swallowed a wineglassful of fresh black matter and felt no inconvenience therefrom. "It did not impair his appetite for dinner."[4]

To the taste the black vomit is at times more or less insipid.[5] In some instances it has been found to have a saline and bitter taste.[6] More frequently, however, it possesses an acid flavour, of which patients often complain, and which gives rise to the sensation of acridity, and to the excoriating effects just referred to. It is acid in reaction. Litmus paper is turned red by immersion in it, and turmeric paper, changed by an alkali, is restored to its original colour. It effervesces with alkaline carbonates, requiring sometimes a large quantity of potash to neutralize it;[7] and the presence of a predominant

[1] A Treatise on Malignant Fever, pp. 53, 54, 55, 56, 57, Phila. 1804.

[2] Rapport la à l'Acad. R. de Med. p. 30.

[3] Lefort, Mém. sur la non Cont. de la F. J. pp. 31, 126.

[4] Bryson, *op. cit.* 55.

[5] Physick's Repository, v. p. 129; Cathrall, Philad. Trans. v. p. 128; Gros, p. 9; Evans, p. 224; Wilson, p. 182; Wood, i. p. 701.

[6] New Orleans Journ. x. p. 228.

[7] Nott, Am. Journ. ix. p. 281; Monges, North Amer. Journ. ii. p. 57; Wood, i. p. 301; Lyons, Lond. Med. and Phys. Journ. 1828; Lewis, New Orleans Journ. iv. p. 159; F. M. Robertson, Examiner, Oct. 1839, ii. p. 665; Harrison, p. 148; Evans, p. 249; Blair, pp. 80, 81; Lyons, *loc. cit.*; Cathrall, p. 11; Davy, Fever of Barbadoes, Ed. Journ. lxxii. p. 280; ib. notes to Blair, p. 81; Riddell, New Orleans Journ. ix. p. 420; Michel, Charleston Journ. viii. p. 335.

If liquor potassæ be added to black vomit beyond what is required for neutralizing the acid, the granular or flocculent sediment becomes dissolved, and the vomit becomes homogeneous and perfectly clear, like light-coloured port wine. In one case, ʒi of black vomit, mixed with an equal quantity of water, required ʒii of liq. potass. to render it transparent and homogeneous.—*Blair*, p. 81.

acid, the hydrochloric, is proved by the effect upon it of the nitrate of silver, which throws down a white precipitate, which is again redissolved by ammonia, but not by nitric acid.

Observations made in Jamaica showed the existence of an oily fluid floating on the surface of the black vomit in sporadic cases of yellow fever, which there is common; and that, too, in instances where no oleaginous medicines had been administered.[1] From experiments, long ago made at Barcelona, and the results of which were confirmed by a competent chemist of Paris,[2] the presence of this oleaginous fluid would seem to have been ascertained. It was there found that the quantity of this substance was increased by the addition of acids.[3] I am not aware that anything of the kind has been discovered in this city or in any part of this country where the black vomit has been carefully examined. In some instances, though not in all, the microscope certainly revealed the presence of a notable quantity of oil-globules; but as most of the individuals who had ejected the matter experimented upon, or in whose stomachs it was found, had taken spirits of turpentine, castor-oil, or essence of beef, there is reason to believe that the globules in question were derived from these substances, and constituted no essential part of the fluid containing them.

Much has been said in olden and modern times respecting the source, nature, and manner of production of the black vomit; for although we occasionally meet with authors who, like Dr. Daniel, of Savannah,[4] frankly avow that, from all they have observed, the only conclusion to which they can satisfactorily arrive, concerning those several points is, that they are yet to be explained; the very large majority of those who have written on the yellow fever, feeling less discouraged, have endeavoured to reach definite conclusions on the subjects in question, and enforced their views with more or less prolixity and pertinacity. Early, however, as attention has been called to the source and nature of the black vomit, and zealously as the investigation has been conducted, considerable difference of opinion existed in former days, and, indeed, continued until recently to exist, on the subject. On few questions, indeed, have more discordant theories been advocated.

It will not be necessary to examine in detail all these theories; for, independently of the circumstance that such a survey would require more space and time than the nature of the present essay will justify, not a few of them have been so ephemeral in their character, and are so evidently destitute of foundation that they merit but slight, if any, attention. In the present state of our knowledge respecting the pathology of the yellow fever, it would be a waste of time, for example, to inquire into the merits of the opinion entertained formerly by a few writers, that the black vomit is exclusively or principally

[1] Davy's Notes on Blair, p. 81.

[2] Laugier, Professor at the Museum of Nat. Hist.

[3] Pariset, p. 636.

[4] Autumnal Fevers of Savannah, p. 72

the result of a gangrenous or sphacelated slough or exfoliation of the coats of the stomach macerating in the secreted fluids of that organ. Few pathologists of the present day admit the existence of such a condition in yellow fever. Even if real sphacelus or gangrene of the stomach were to occur, it is doubtful whether it would give rise to a fluid like the black vomit, in such large quantities especially. The fluid, besides, is ejected in cases in which recovery takes place, and in which therefore there cannot be a shadow of probability of gangrene having occurred; while it has been found, on dissection, in stomachs the soundness of which could not be disputed. Still less need we dwell on the idea thrown out by Fordyce,[1] and subsequently adopted by Breschet and Heusinger,[2] who considered it to be an exudation similar to that producing the incrustation upon the tongue, lips, and teeth, in malignant fever. The former has no advocates at the present day, and the second has died with its celebrated promulgator and his few followers. More useful will it be to examine those theories which have commanded the attention of the profession at large, and continue to this date to enumerate advocates.

By many experienced and accurate observers, the black vomit was, and by some contemporary pathologists is, regarded as consisting of little more than altered bile, sometimes, though not necessarily, mixed with blood.[3] This opinion is principally founded on the supposed identity of the yellow fever with the remittent bilious fever, in which the vomiting of bile of various degrees of purity is a very ordinary, if not universal symptom; as well as on the circumstance that bile often assumes a dark or even black colour; that a fluid more or less allied in appearance to the black vomit has been discovered not only in the stomach, but in the common duct and duodenum; that in some cases of yellow fever a fluid, the bilious character of which is undisputed, is ejected from the stomach; that the real black vomit occurs often in cases where there has been no effusion of pure blood, at least in which none has been observed during life or discovered after death, that the black vomit bears no resemblance to the latter fluid, and that it is almost invariably associated with jaundice.

Others have regarded it as of hepatic origin, but not as of a bilious nature—

[1] Dissertations on Fevers, p. 335, Am. ed.

[2] Researches on the Accidental Production of Pigments and Carbon in the Human Body.—See *Cyclop. of Pract. Med.* iii. p. 94.

[3] Desportes, Maladies de St. Domingue, i. p. 202; Towne, A Treatise on the Diseases most frequent in the West Indies, p. 21; Lining, A Description of the American Yellow Fever, Edinb. Essays and Obs. Med and Phys. ii. p. 419; Deveze, Traité de la F. J. p. 24; Drysdale, Med. Museum, i. p. 136; Davidge, Notes to Am. ed. of Bancroft, p. 506; J. Clark, A Treatise on the Yellow Fever of Dominica, pp. 13, 66; Berthe, Précis Hist. de la Maladie qui a régné dans l'Andalousie en 1800, p. 87; Robert, Guide Sanitaire, &c. i. p. 337; A. Hosack, History of the Yellow Fever of New York in 1795, p. 14, note; Stuart, Diss. on Black Vomit, p. 48; J. Mitchell, Yellow Fever of Virginia in 1742, Med. and Phil. Register, iv. p. 185; Heastie (A.), A Treatise on the Nature and Causes of Yellow Fever, p. 22; M'Cabe, Military Med. Report, &c., on Diseases of the West Indies, p. 24.

the product of a perverted or vitiated secretion of the liver. Such was the opinion especially of the late Dr. Cathrall, of this city, whose experiments on the black vomit attracted some attention at the period of their publication.[1] Disbelieving the opinion of its being putrid blood, because blood after becoming highly putrid and kept for six months imparts a red colour to water, a property not destroyed by a high degree of putrefaction; arguing also that blood differs from the black vomit in not consisting of flaky particles, and giving no proof of containing an acid in a disengaged state; opposed besides to the belief of its being bile, either putrid or rendered black by admixture in the stomach with nitric acid, which was supposed by Dr. Mitchell, of New York, to be generated in that organ and the intestines, and at the same time believing that dissection had shown the black flaky particles or colouring matter of the vomit to proceed from the gall-bladder, Dr. Cathrall thought himself justified in referring it to the cause mentioned. In illustration of the correctness of this opinion, he called attention to the circumstance proved by many facts, that the secretory economy of the liver may be so far arrested in its healthy action, by the progress of disease, as to assimilate a fluid having not the least analogy to bile, in the same way that the kidneys secrete sometimes a fluid not at all like urine.

By others, again, the black vomit has been viewed as the product of a morbid secretion of the inflamed vessels of the stomach, which in the healthy state secrete mucus and the gastric fluid. Of the advocates of this opinion, the greater number regard this secreted fluid as being of a sanguineous nature. Such was the opinion entertained on the subject by the late Dr. Physick, whose experiments on the nature of the fluid were made during one of our early epidemics.[2] Such also was the sentiment, more or less modified, of Drs. Rush,[3] Caldwell,[4] Stuart,[5] Ffirth,[6] Lowber,[7] and Sanderson,[8] of this city; of Drs. Shecut[9] and Dickson,[10] of Charleston; Belcher,[11] H. M'Lean,[12] R. Jackson,[13] Dancer,[14] and J. Wilson,[15] of England. By the last-mentioned writer, whose views on all subjects connected with the etiology and pathology of the yellow fever are entitled to respectful consideration, the substance vomited is maintained to arise from the "perverted chemical action of the secernents of the stomach, intestines, and liver, especially the first," and

[1] Transactions of the American Philosophical Society, v. p. 125, and Memoir on the Analysis of the Black Vomit. Philad. 1800.

[2] Medical Repository, v. p. 129.

[3] Works, iii. pp. 60, 61.

[4] Fever of 1805, pp. 91, 92.

[5] Essay on Black Vomit, p. 48.

[6] Dissertation on Yellow Fever, p. 37.

[7] Med. Museum, v. p. 26.

[8] Med. Mus. v. p. 20.

[9] Med. and Ph. Essays, p. 120.

[10] Philad. Med. and Phys. Journ. xiv. p. 229.

[11] Edinb. Med. Journ. xxiii. p. 252.

[12] Mortality of Troops in St. Domingo, pp. 29, 30, 89.

[13] Sketches, &c. i. p. 80, note.

[14] Med. Assistant, p. 83, note.

[15] On West India Fever, p. 211.

to be neither vitiated bile nor extravasated blood, since it possesses not the properties of either. "It appears," says Dr. Wilson, "that nature, in her distress, to relieve the turgid vessels of those viscera, pours forth the redundant blood through secretory vessels by which it is changed." Dr. M'Lean remarks that, from "the great determination of blood and the violence of the action in the vessels, immense secretions are made in the stomach, which, acquiring there a dark colour from the admixture of other fluids, and perhaps portions of the coats of the stomach," with some blood and bile, create what is termed the black vomiting.

Dr. R. Jackson, who originally thought that the black colour of the matter ejected arose from admixture of the black bile of the gall-bladder with the fluids of the stomach, subsequently came to the conclusion, from the results of observations on the dead body, that the colour proceeded from admixture with diseased secretions from the mucous membranes of the whole gastric system, more especially of the liver, and discharged from ducts or canals, not bloodvessels, the mouths of which, filled with dark-coloured fluid, he discovered in various parts of the viscera. More recently, Dr. Dickson, in the publication referred to, asks the question: Is it (the black vomit) or is it not a mixture of dark blood acted upon and closely combined with the gastric fluid? and answers it in the negative, "because in the vast majority of instances it is impossible to detect any of the reddish tint which blood, however altered, essentially possesses and retains. This tint it communicates in all cases of hæmatemesis proper to the contents of the stomach, so as to be unequivocally perceptible. In many patients, in the last stages of yellow fever, and occasionally of bilious fever, this hemorrhage occurs. It is then easy to discover the mixture of blood with black vomit in other matters ejected. A bit of white paper or rag dipped in any such mixture, in which the smallest proportion of blood is diffused, will not fail to show plainly enough the reddish hue.

From what precedes, as well as from what we gather in the writings of those who advocate the secretory nature of the black vomit, it will be perceived that the theory is little better than a conjecture. But it was the best that could be adopted, in the absence of information necessary to arrive at something more satisfactory, to account for the formation of the fluid. They were convinced, from the numerous facts observed, and a variety of circumstances to which attention will be called presently, that the black vomit differs essentially from bile or the product of any morbid operation of the liver. They perceived very plainly that it is the product of a diseased condition of the mucous surface of the stomach, probably also of the intestines, and that it is not poured into those organs from any neighbouring or distant part. They entertained besides, the belief that, though issuing from the minute bloodvessels of the stomach and bowels, which are sometimes found gorged with it, and the inflamed or congested state of which is evidently relieved by its effusion, the matter in question nevertheless differs too much from ordinary blood to justify its being regarded as simply a modified or altered condition of that

fluid, produced after its discharge into those cavities, or just before, through the agency of their morbid products. And having satisfied themselves on those points, but being at the same time unaware of many facts which have more recently come to light, and to which I shall soon advert, the pathologists mentioned could not well have avoided attributing the change effected in the blood to a vital process analogous to that which takes place in secretion. How far this opinion is entitled to our regard will be seen as we proceed.

By another and much more numerous set of writers, the black vomit is viewed in the light of an hemorrhagic effusion from the capillary vessels of the mucous coat of the stomach and bowels; in other words, of blood—real, though somewhat modified in its texture. This theory of the nature and source of this important fluid, though claimed as new by physicians of our day, may be traced up to an early period in the history of the yellow fever. It was advocated in the plainest possible terms, more than a century ago, by Dr. Henry Warren, of Barbadoes, whose letter to Dr. Mead on the epidemic which prevailed in that island in 1732, was issued in volume form in 1740, and constitutes one of the earliest professional records of the yellow fever in our language. "I ought to observe here," says Dr. Warren, "that the fatal black stools and vomitings are vulgarly supposed to be only large quantities of black bile or choler; which false notion seems to be owing to that fixed, unhappy prejudice that the fever is purely *bilious*. But, let any one only dip in a bit of white linen cloth, he will be soon undeceived, and convinced that scarce anything but mortified blood is then voided; for the cloth will appear tinged with a deep bloody red or purple, of which I have made many experiments."[1]

Closely allied to these views, relative to the nature of the black vomit, are those of Dr. John Williams, who, in an essay on the yellow fever of Jamaica, which appeared in 1750, enumerates among the worst symptoms of the disease "strong and continual convulsions of the diaphragm, intercostal muscles, and stomach, æruginose vomitings—then vomiting of black adust blood, appearing like the grounds of coffee mixed with acrid unfinished bile, the juices of the stomach and pancreas both very sharp."[2] A similar opinion was about the same time adopted by Dr. Chevalier in his letters on the diseases of St. Domingo (p. 10), and other of the older writers, and has since been advocated by the highest professional authorities in this and other countries,[3]

[1] A Treatise concerning the Malignant Fever in Barbadoes and the Neighbouring Islands, &c. pp. 39, 40.

[2] Essay on the Bilious or Yellow Fever of Jamaica, 1750, p. 16.

[3] Lind, Hot Climates, p. 185; Bruce in ditto, 186, note; Rouppe, Diseases of Seamen, p. 304; J. Hunter, p. 64; Blane, Diseases of Seamen, p. 410; Hillary, p. 151; Pugnet, pp. 356, 357; Lempriere, ii. p. 103; Stevens on the Blood, p. 330; Bancroft, pp. 39, 40, 43; Bone, in Cyclop. Pract. Med. ii. p. 274; Gillkrest, ib. p. 274; Rochoux, pp. 279, 552; Imray, Edin. Journ. liii. p. 91; Vatable, An. Maritimes, for 1828, p. 355; McArthur (in Johnson) on Tropical Climates, p. 350; Monges, North Am. Med.

some of whom had entertained at one time a different sentiment on the subject.[1]

and Surg. Journ. ii. pp. 58, 59; Parrish, Med. Museum, iii. p. 189; Valentin, p. 168; Dubrueil, Journ. Univ. viii. pp. 321, 322; Dariste, p. 116; E. H. Smith, in Webster's Collection, pp. 120, 121; Maher, An. Maritimes for 1842, p. 893; Guyon on Fever of Gibraltar; ib. for 1830, p. 755; Lyon, Lond. Med. and Phys. for 1828; Arnold on Bilious Fever, p. 38; Pariset, Fever of Barcelona, 1821, pp. 361, 389, 638; Kelly, Am. Journ. N. S. xiv. pp. 382, 385; Waring, p. 52; Osgood, p. 26; Pym on Bulam Fever, p. 223; Evans, p. 248; Barry in Boyle, p. 272; Chambolle, Broussais's Journ. xiii. p. 200; Furlong, Med.-Chirurg. Rev. xxv. p. 291; Blair, p. 81; J. Davy's notes on Blair, p. 81; and Edin. Med. and Surg. Journ. vol. 72; Nott, Am. Journ. ix. N. S. p. 281; Harrison, N. O. Journ. ii. pp. 119, 147; Audouard, Recueil de Méd. p. 1, and Hist. Méd. de la F. J. de Barcelona, pp. 188, 189; Levacher, Guide Med. p. 83; Palloni, p. 5; Townsend, Fever of New York in 1822, p. 162; S. Jackson, Fever of Philadelphia in 1820; Essay, p. 81, and Philadelphia Med. and Phys. Journ. ii. p. 22; Irvine, of Charleston, pp. 24, 25, 26; Louis, p. 218; Desmoulin, Eccl. Repertory, xiii. p. 164; Ashbel Smith, Am. Journ. xxv. p. 503; ib. Trans. of N. Y. Acad. of Med. i. p. 61; Fenner, Southern Med. Rep. i. p. 581; ib. ii. p. 89; Lewis, New Orleans Journ. iv. p. 159; Dickinson, pp. 134, 135; Ferguson, Recollections, &c. p. 146; Wood, Pract. of Med. i. p. 301; Chervin, in Waring, p. 50; Merrill, New Orleans Journ. viii. p. 6; Grant, pp. 32, 47; Edin. Med. and Surg. Journ. lxix. p. 124; Michel, Charleston Journal, v. pp. 748, 749; ib. viii. pp. 333, 348; Shannon, Pract. Obs. p. 48; Craigie's Practice, i. p. 247; Copland, i. p. 979; ib. iii. p. 145; Dickson, Bell's Eccl. Journ. iv. p. 110; Carswell, Cycl. iii. pp. 88, 102.

[1] M. Audouard, whose earliest publication on the yellow fever appeared some eighty years after that of Warren, strangely enough sets himself up as having been the first to discover that the black vomit is not bile, but simply the result of an hemorrhagic effusion. He rates his fellow-commissioner, M. Pariset, very roundly for having appropriated to himself what he holds in the light of his discovery, and entered into, without acknowledgment, all the particulars he had laid before the public two years before—even to the tasting of the black vomit. P. 6, note.

It would be easy to show that, in everything sensible M. Audouard has said, on the subject of the black vomit, or indeed of anything connected with the yellow fever, he has been anticipated. Of his publications we may say what Blumenbach is reported to have remarked of Gall's phrenological works: Everything good they contain belongs to some one else; and every novelty they teach is good for nothing. While on the subject, I must be permitted to call attention to another circumstance connected with the question of the origin of the theory before us. Dr. Michel, of Charleston, who has done much to advance our knowledge respecting the true nature of black vomit, says: "Early in 1740, Warren certainly speaks of the 'fixed and unhappy prejudice' that yellow fever is a 'purely bilious affection,' and states his conviction that the matter ejected contained no bile, and that cloths are tinged with a deep purple, or blood-red, when dipped into the vomit. The same opinion was promulgated by Dr. Pym, and seems to have been the one expressed by Hunter, Pringle, Sir G. Blane, and many others; but suffer me to ask," he continues, "whether it has been received in any other light than a plausible conjecture?" Farther on, after alluding to an antiquated and now forgotten opinion, respecting the nature of the fluid, he adds: "Yet, if we analyze the arguments of the present day, the equally ancient supposition of its being vitiated, or black bile, is the only choice of opinion left us." If the reader will refer to

ART. II.—*On Fatty Degeneration.* By J. W. C. ELY, M.D. (The Annual Discourse delivered before the Rhode Island Medical Society, Providence, June 29, 1853. Published by Request of the Society.)

ALL animal tissues are liable to transformations, and as the new tissue is usually inferior in chemical composition and in physical and vital properties to the old, this transformation has been very properly called degeneration. Dr. Williams, in his *Principles of Medicine*, specifies four kinds of degeneration, the fibrous, the granular, the fatty, and the osseous. Of these kinds of degeneration, allow me to call your attention to the third, namely, *fatty degeneration.* Much light has been shed on this diseased condition of the animal tissues from the recent labours of Williams, Paget, Rokitansky, Quain, Barlow, and other distinguished microscopic pathologists. The results of these researches are scattered over the pages of the various medical journals. A summary of what is now known on this subject, I hope, will not prove uninteresting to the Fellows of this Society.

Fatty degeneration is a transformation of normal tissue into molecular fat-granules. This change has been observed most frequently in the muscular and fibrous tissues, and in the various secretory organs of the body, but is not confined to them.

Muscle thus affected is of a pale yellowish fawn colour, compared by Laennec to dead leaves; sometimes it is of a dirty pink colour; when occurring in patches, it gives to the muscle a mottled appearance. The muscle is soft, flabby, and easily torn, and presents on section a granular instead of the normal fibrous appearance.

Rokitansky (in his *Manual of General Pathological Anatomy*) thus describes the physical appearances of the fatty changes in muscle.

"The earliest change is one of colour. The muscle has a pale-reddish appearance; and is found, on close examination, to be not uniformly discoloured, but stained irregularly of a yellowish or fawn colour, as well as marked with longitudinal pale-reddish streaks which follow the course of the fibres. As the stains of fat increase in size and coalesce, the muscle acquires an almost uniform fawn colour; but its fibrous arrangement still remains distinct. With

the various works, large or small, that treat of the subject in question, he will have no difficulty in finding that, so far from the ancient supposition of the bilious nature of black vomit being the only choice of opinion left, that supposition is now pretty generally discarded—that the sanguineous nature of that fluid is not generally considered merely as a plausible conjecture, but as a positive and admitted fact; and that though the microscope had not been called in aid before the year 1845, when it was applied to that purpose by Dr. John Davy, with results similar to those obtained more recently, proofs of that fact, of a sufficiently satisfactory character, had long been laid before the public, and regarded by numerous and competent authorities as perfectly conclusive.

the advance of the disease it becomes altogether of the colour of fat, sometimes being yellow, sometimes remarkably white, and resembling, accordingly, either tallow or spermaceti. No trace of its fibrous structure remains except some of its tendons or the cellular sheaths of its fasciculi. Up to this stage of the disease, the outline of the muscle has been preserved; but, in the last stage, the mass of fat into which the muscle is changed mixes with the adipose structures around it. We may, then, find in a limb nothing of its muscles but remnants of tendons and aponeuroses, with their prolongations inwards."

In order to get a clear idea of the appearances presented under the microscope, by degenerated muscular fibre from the commencement to the completion of the change, it will be better to enter a little into the minute anatomy of muscle. Muscles are made up of bundles of primitive fibres, called fasciculi; each fasciculus is encased in a transparent, tough, elastic membrane, or sarcolemma. These fasciculi are surrounded and held together by areolar tissue, which gives support to the capillaries and nerves of the part. The fasciculi present distinct transverse markings, and less distinct longitudinal ones. In some fishes, as the eel, the fasciculi cleave transversely into disks; in other classes of the animal kingdom, as the mammalia, they cleave into fibrillæ.

Under the microscope the disks appear granular, as they are made up of a transverse section of all the fibrillæ. When the fibrillæ are examined with a sufficiently high power, each fibrilla appears made up of a line of rectangular cells, each cell containing a particle of muscular substance, named myoline.

"Before fatty degeneration commences in voluntary muscle," says Quekett, in his *Lectures on Histology*, "the transverse striæ disappear; and I have long known that the first trace of this disease is marked by a disturbance of the particles of myoline, which appear as so many very minute granules, scattered irregularly within the sarcolemma, leading one to suppose that the delicate cell around each particle had given way, thereby allowing the myoline to escape, and destroying all regularity both of the transverse and longitudinal markings. As the disease progresses, the myoline is replaced by minute highly-refracting globules of oil, until at last the whole sheath is full of them."

Mr. Hallet (*Edinburgh Medical and Surgical Journal*, 1849) found that a piece of the greater pectoral muscle, weighing one ounce, which had undergone fatty degeneration, yielded seven drachms and one scruple of oily matter. He also states that the outer fibres of a muscle first undergo fatty degeneration; the inner ones becoming affected in time.

Complete fatty degeneration produces no diminution in the size, or change in the form of muscles thus affected.

The following (condensed from the 16th No. of *Ranking's Abstract*) illustrates this form of fatty degeneration:—

Mr. Erichson amputated the leg of a woman, aged 48 years, of a leucophlegmatic temperament; for fourteen years she had suffered from abscesses in and about the foot, which resulted in necrosis of the bones of the foot and disease of the ankle-joint. The calf of the leg was not much wasted; upon examination, the muscles appeared of their normal shape and size, but pre-

sented a pale fawn colour and almost waxy aspect, instead of the healthy reddish-brown. This change was most complete in the superficial muscles; a few healthy muscular fibres were found in the deeper layer. The same change was observed in the muscles of the sole of the foot. The microscope proved the change to be far advanced fatty degeneration. The stump healed kindly, thus showing that degenerated muscles will heal as well as healthy ones.

The following is from the January number of the *American Journal*, for 1853:—

A man, aged 60, was admitted into the Massachusetts Hospital with an extensive ulcer of the leg. When twenty-four years of age, he cut into the cavity of the knee-joint with a broadaxe. After four months' confinement, he recovered with an anchylosed joint; at thirty, the ulcer commenced and continued open to the time of admission. The leg was amputated by Dr. S. D. Townsend. Upon examination, almost the whole gastrocnemius muscle was found to have undergone complete fatty degeneration.

Mr. Toynbee has found fatty degeneration of the tensor tympani muscle, even in children, in those cases in which the function of the tympanum was imperfectly performed, from inflammation or any other cause.

The following interesting case of general fatty degeneration of the voluntary muscles was reported to the Royal Medical and Chirurgical Society, Dec. 9, 1851, by Dr. Meryon:—

G. H. P., from the time of birth till four years of age, was perfectly healthy; at this time he began to manifest some weakness of the legs, which continued to increase uninfluenced by remedies; at eleven, he could neither walk nor stand; in a similar manner he lost all muscular power in his arms. At seventeen he was attacked with a simple fever, and died. Previous to examination, the disease was supposed to be in the spinal cord. The limbs appeared remarkably well developed. Upon examination, all the viscera of the head, chest, and abdomen were perfectly healthy, but the muscles throughout the whole body were atrophied, soft, and nearly bloodless, of an ochre colour, and flabby. The microscope showed that they all had undergone fatty degeneration. Two younger brothers began to manifest the same symptoms and condition at the same age; the fourth had not arrived at the age when the others were attacked. There were six daughters in the same family, but none had presented any symptoms of the disease. Dr. Meryon mentions another family of two sons and two daughters, in which the sons were similarly affected, and the daughters escaped. Also a third family, of three sons and one daughter, the sons alone affected. Sir Benjamin Brodie mentions three or four like cases, all which occurred in males.

Dr. Meryon regards the following symptoms as diagnostic of this disease: 1. Absence of all symptoms, indicating active nervous disturbance, as pain in the back and head, rigidity of the trunk, or tremulous motions of the limbs, &c. 2. The very slow and almost imperceptible loss of power. 3. The perfect command over the bladder.

The course of treatment he pursued with his surviving patients, and by which they were improved, was: 1. To supply to the blood those fibrinous elements in which it was deficient; 2. Exciting to action the capillaries of the muscular fibres by exercise; 3. Communicating to the muscles artificial

electric currents. He found the interrupted current more beneficial than the continuous. (*Lancet*, Dec. 20, 1851, p. 588.)

Mr. Hallet (in the April number of the *Edinburgh Medical and Surgical Journal*, for 1849) published an account of a similar case of fatty degeneration of nearly all the voluntary muscles. Of the involuntary, the heart alone was degenerated. The patient, a man, died at the age of seventy-eight.

Fatty degeneration of muscular fibre is not confined to man; it occurs often in the lower animals. If fibres from the breast or wings of fowls are examined under the microscope, some of the fasciculi will be found to have undergone this degeneration. This arises, no doubt, from their want of use. Quekett mentions having observed the same change in the muscles of the legs of ostriches, after being long kept in close confinement; the degenerated fasciculi are whiter than the more healthy. He has also observed the same degeneration in the bones of this animal.

Mr. Kent has reported (in the *Veterinary Record*, for 1847) a case of rupture of the right ventricle of the heart, in a horse, from fatty degeneration.

Adipocire is an instance of fatty transformation of the animal tissues after death. For its production, it is necessary that the tissues be exposed to the action of a certain amount of moisture and kept excluded from the air. Under the microscope, the areolar is the only tissue seen. Numerous instances of the conversion of the human body into adipocire have been published. In one of the burial-grounds of Paris, fifteen hundred bodies were interred in one pit; most of them, by the action of water, were converted into adipocire. Under favourable circumstances, the same change has been noticed in the vaults connected with dissecting-rooms.

Fatty degeneration must be distinguished from fatty accumulation or substitution. Fatty accumulation is a hypertrophy of the normal adipose tissue or fat-cells; it arises from an excess of nutrition; degeneration results from deficient nutrition. Fatty accumulation may, by its bulk, press upon and cause the wasting of the surrounding tissues, and thus be substituted, as it were, for them. Quekett mentions a mutton chop, preserved in the Museum of the Royal College of Surgeons, in which nearly all the muscular substance is replaced by adipose tissue. He also cites the following case, which occurred a year or two since: The leg of a man, aged thirty-five, which had been palsied since he was three years of age, was amputated. Upon examination, only a few fasciculi of voluntary muscular fibre, and those of very small size, could be found, the mass of muscles being replaced with adipose tissue. The few fibres that were found were perfectly healthy, differing in this respect from true fatty degeneration.

Granular degeneration might easily, upon a superficial examination, be mistaken for fatty degeneration. According to Williams, a tissue having undergone granular degeneration presents under the microscope a great increase of aggregated granules, with a corresponding diminution of the proper fibrous

tissue; it is not so opaque, or easily torn, or soft as true fatty degenerated tissue; the granules are not so highly refractive, and no free oil-globules are mingled with them.

Paget, in his Lectures on Nutrition, Hypertrophy, and Atrophy, describes a form of granular degeneration of the muscular fibres of the heart, which appears to be intermediate between the above and true fatty degeneration. The heart has its normal size and form; to the feel it is soft, doughy, and inelastic, can be easily moulded into any shape; in a word, it has the physical appearance of a heart in which decomposition has commenced; it has not the bright ruddy brown colour of a healthy heart, but is of a duller, dirtier, lighter brown, which, in some parts, shades off into a pale fawn colour. If the wall of the left ventricle be partly cut through, the rest is easily torn. The cut surface appears granular. The microscope shows that the primitive fibrillæ are inclined to divide transversely, as in certain fish, rather than longitudinally, as in man. This transverse cleavage gives the torn muscle its granular appearance. Minute oil particles are seen within the sarcolemma of the fibre. In three cases, in which Mr. Paget found this diseased condition of the heart, the death was sudden and not preceded by symptoms referable to the heart. Persons leading a quiet, inactive life, may have this diseased condition of the heart, without its giving rise to any noticeable symptoms, but they would probably quickly succumb to the shock of an accident, a severe operation, or any violent sickness. Does not this diseased condition of the heart account for many cases of sudden death, where a hasty examination has failed to detect disease sufficient to account for death? But future researches will probably reveal that the different forms of granular degeneration, described by Williams and Paget, are simply different stages in the process of true fatty degeneration, probably the commencing and intermediate stages.

The following case, reported (to the Pathological Society of London) by W. F. Barlow, illustrates this form of granular degeneration; and, as far as one case goes, it shows that granular degeneration is only an antecedent stage of fatty degeneration:—

J. B., cabman—precise age not known, evidently very old; the arcus senilis existed in both eyes, more strongly marked in the left; of temperate and active habits; with the exception of one day, had attended regularly to his duties; muscular system well developed. The manner and suddenness of his death were not known; when seen, the cab was moving along the street, he lying back upon the seat dead; the reins had fallen from his hand. Examination twenty-four hours after death: Body rigid; skull uncommonly thick; arachnoid opaque; brain shrunken; convolutions small; gray matter thin and pale; the fibrous or white part of brain tough; even septum lucidum and olfactory nerves not easily torn; arteries of the brain full of atheromatous patches; the left vertebral artery contained a cylindrical mass of fibrin a third of an inch long—thus diminishing the amount of blood to the brain—at this point the coats of the artery were badly degenerated.

The heart was flabby; did not preserve its rounded form, but lay flattened; had a dingy colour, but not the fawn colour and mottled appearance of fatty

degeneration; the walls were softened, especially those of the left ventricle; the cavities were dilated, also the aorta, which was thickly studded with atheroma; aortic valves were expanded and thin; the coronary arteries were much degenerated, but their caliber was not diminished. The muscular fibres of the heart were easily broken, and in some spots entirely destroyed; viewed under the microscope, the striæ seemed disappearing in numerous places; in others, the fibres remained perfect. The degeneration was most extensive in the left ventricle, but it existed in other parts. The degeneration was mostly granular, but the granules were seen here and there to be undergoing conversion into oil-globules.

Dr. Richard Quain, in an article read before the Medico-Chirurgical Society of London, since published in its *Transactions*, and reported in the various medical journals, specifies two forms in which fat occurs as a disease of the heart, namely: Fatty accumulation and fatty degeneration. He gives a table of 15 cases, in which the growth of the normal fat tissue upon and among the fibres of the heart was so great as to become a disease, that is, to impair the structure and functions of the heart, causing derangement of the circulation. 5 of the 15 cases had suffered from dizziness or coma; 8 from syncope; 9 from shortness of breath and feeble circulation. In all but one, death occurred suddenly. 1 died by coma; 3 by rupture of the heart; and 10 by syncope. This accumulation of normal fat tissue is usually found at the base of the ventricles—along the line that separates them, in the course of the coronary arteries, and on the posterior part of the right ventricle; but occasionally, as in some of the cases reported by Quain, it completely covered the organ externally, and penetrated to a considerable depth between the muscular fibres, and the heart looked as if its walls were made of fat. Dr. Hope mentions a case in which a layer of fat, a quarter of an inch thick, covered the anterior and lower half of the right ventricle. Although in such cases the walls are attenuated, pale, and flabby from pressure, yet the fibres upon examination will be found unchanged in structure. The tendency of this form of fatty heart is to end in dilation of one or more of its cavities Hope gives three cases in which he suspected fat to be the cause of disease; in only one was he able to verify his suspicion by dissection. The other two presented the same symptoms, namely, enfeebled sounds, especially the first; irregular pulse, without valvular disease; and oppression, or even pain in the præcordial region, with signs of retarded circulation producing cerebral, hepatic, and other congestions.

Dr. T. K. Chambers, in his *Gulstonian Lectures*, has collected the histories of 38 obese persons. From these, it appears that the most common age, at which corpulency begins, is from 18 to 30. In 21 of the 38 cases, it began between these ages. In most of the cases there was an hereditary disposition to corpulency Sex seemed to exercise no influence, as it occurred in 19 males and the same number of females. Dr. Chambers found partial obesity is very apt to occur about the time of the cessation of the functions of the generative organs, being deposited in the omentum and upon the heart more

commonly than under the subcutaneous tissue. This excessive overloading of the heart with fat occurs occasionally in those with no tendency to corpulency in other parts; but, of course, is much more frequent in those that have the tendency. Out of 36 corpulent persons who died at the St. George's Hospital between 1845 and 1850, the hearts of 12, upon examination, were found loaded with fat. Of 165 persons, not notably fat, who died at this hospital during the same period, of disease of the heart, in only 4 was there much fat deposited on the heart. The tendency to partial deposition of fat at the turn of life increases with the increase of years. Dr. Chambers gives the cause of death in 69 obese persons, as shown by *post-mortem* examinations made at the St. George's Hospital: Of 57 whose hearts were examined, 50 were found diseased, namely, 5 hypertrophied; 8 hypertrophied and dilated; 26 dilated; and 11 atrophied. In 13 of those which were dilated, 2 of those atrophied, and 1 of those hypertrophied and dilated, that is in 16, there was an increased quantity of normal vesicular fat about the base of the heart. Of the 11 cases of atrophy, all that were submitted to the test of the microscope were found to have undergone fatty degeneration.

In the second form of disease of the heart from fat, there is not of necessity any deposit of fat upon the heart or among its fibres; but the muscular tissue is disintegrated into fat granules or molecules—a true process of decay. By accident, Dr. Quain discovered changes produced in the heart of the dead similar to those that often occur in the living, whose vitality is low, circulation feeble, nervous system deranged, and tissues damaged by atrophy. He and others also have since instituted experiments for the conversion of albuminous and fibrinous textures into adipocire; and from chemical and microscopic observation, both of adipocire and degenerated muscle, have concluded that the appearances in the artificial and natural processes are identical. The observations of Quain, Williams, Paget, and Rokitansky, all go to establish the conclusion, that when the vital properties of the protein compounds are impaired, they succumb to the physical forces around them, and assume the more simple forms common to animals, plants, and minerals.

Imperfect nutrition is the first step in the process of fatty degeneration dependent upon original weakness or deficient action of the assimilating organs. In the case of the degenerated heart, it may suffer, in common with other organs of the body, from mal-nutrition; or, locally, from disease of the coronary arteries or the ulterior effects of endo and pericarditis.

The most frequent seat of fatty degeneration of the heart is in the walls of the left ventricle, less often in the septum, sometimes in the right ventricle, and more rarely in the auricle. Out of 68 cases of fatty degeneration of the heart, Dr. Quain found it in connection with hypertrophy in 39 cases. This, he believes, is owing to the less perfect nutrition of hypertrophied hearts. Rokitansky attributes it to disturbance of the balance of the nervous functions. To the same cause, whatever it may be, is due the fatty degeneration of the muscular tissue of hypertrophied bladder, first pointed out by Mr. Han-

cock. In the remaining 29 cases, the heart was either of normal size or diminished.

In consequence of diminished consistency of the walls, rupture occurred in 25 of the 68 cases; in 20 the rupture was complete; in 5, incomplete; being limited to the external, internal surface, or in the substance of the heart, the latter constitutes what has been called cardiac apoplexy. Blood thus effused into the substance of the heart, becoming encysted, and losing its colour, simulates an abscess. Cardiac aneurism may result from fatty degeneration of the walls of the heart.

Coma and even apoplexy result from fatty degeneration of the right ventricle; its weakened walls have not the power to propel the blood onward; its cavities fill, and the circulation is obstructed. Faintness and syncope result from the same condition of the left ventricle. It was present in 15 of Dr. Quain's 68 cases. Syncope in these cases may be only transitory, or it may end in death. In 54 of the 68 cases, death was sudden. Out of these 54 sudden deaths, 21 were by syncope.

From our present knowledge of the symptomatology of this disease, the diagnosis must be more or less conjectural. We have no physical sign or symptom pathognomonic of the change, unless the senile are prove to be such. The following are the usual signs and symptoms: Feeble impulse of the heart, feeble first sound, extended dulness on percussion, perhaps a murmur with the first sound, or imperfection in the second sound of the heart. The pulse is never strong. Of Dr. Quain's 68 cases, in 13 it was irregular; in 14 weak; in 8 slow; and in a few full, regular, and quick. The countenance is often anxious. Mental irritability usually exists; copious sweats from slight causes; feeling of fatigue from trifling exertion, especially upon going up hill; breathlessness, slight at first, but gradually increasing, till any exertion will induce the most intense suffering. Besides breathlessness; syncope and pain in the region of the heart are frequent symptoms; these three may occur singly or together. Many of these symptoms are the symptoms of angina pectoris, and it is the opinion of both Quain and Ormerod, both of whom have given much attention to this subject, that in fatty degeneration of the heart is found the true explanation of the pathology of angina pectoris in many cases, especially those in which no disease of the structure of the heart was detected; the fatty degeneration of its muscular tissue being overlooked, and the symptoms all attributed to diseased coronary arteries or fat upon the heart. All these symptoms, of course, are more marked when the heart, from some local cause, has become degenerated than when it participates in the degeneration of the whole body, as in old age.

Treatment.—Dr. Quain found the results of treatment more successful than at first might have been supposed. Though we may not be able to restore disintegrated fibres, yet we may prevent the degeneration of those remaining, and render them more effective. To do this, we must improve the condition of the blood; make it richer in fibrin, albumen, and corpuscles, a

better stimulant to the heart. The condition of the digestive organs should be particularly attended to. The use of iron has been found especially advantageous. Paroxysms of dyspnœa and pain are to be relieved by antispasmodics; their recurrence may be prevented by leeches to the region of the heart, followed by counter-irritation. Dr. Quain found narcotics injurious. Exertion and over-exercise should be forbidden. Dr. Kennedy thinks a well-directed system of exercise, active rather than passive, a most valuable means of cure in this disease.

Perhaps the two following cases, reported by Dr. Quain (to the Pathological Society of London), will give a better idea of fatty degeneration of the heart than any summary of its symptoms:—

Lady H., aged 58, on rising from bed, went to the night-chair to empty the bladder, then laid down, and died immediately. From her 51st to 54th years she had three attacks of apoplexy, followed by slight weakness of right upper and lower extremities. After the first attack, she began to complain of shortness of breath upon exertion. About fourteen months before death, she began to suffer most distressing and alarming attacks of dyspnœa; these came on usually about two o'clock in the morning; the extremities and face became cold and livid, pulse feeble and irregular; as the sense of threatening suffocation became less, a severe pain in the præcordia and across the chest came on. The impulse of the heart was weak, the first sound low and prolonged, second sound clear, no murmur, extent of dulness over heart increased. The arcus senilis existed in both eyes. Upon examination, traces of the three attacks of apoplexy were found in the brain; the arteries at the base of the brain were studded with atheromatous or fatty matter. The lungs were healthy. The anterior branch of the left coronary artery was extremely ossified, the right auricle dilated and thickened, the right ventricle thickened, the greatest thickness of left ventricle thirteen lines; the valves were healthy. The septum near the apex and the wall of the left ventricle towards the anterior surface of the heart presented the pale buff colour of fatty degeneration, which passed into, and contrasted with, the healthy flesh colour of other parts of the heart. The microscope revealed the characteristic appearance of fatty degeneration, and, mingled with it, a large amount of fibrous tissue. The liver was enlarged, hard, and granular; kidneys were rough and granular, one enlarged and the other atrophied. Ossification of a branch of the coronary artery, with degeneration of that part of the heart it supplied with blood, clearly points to impaired nutrition as the cause. (Condensed from the *Lancet*, Dec. 14, 1850.)

The subject of the following, a lady of rank, who had, through life, suffered much mental anxiety, died at the age of sixty-eight. For ten years previous, she was nervous, irritable, and often passed sleepless nights; she occasionally had a cough with expectoration, frequently complained of heaviness and oppression in the sternum. She was always complaining, yet never seriously ill. About two years before her death, the pulse was noticed to be irregular and uncertain in action. Two months before death, she complained of numbness of the fingers of the left hand, and of a tingling and uneasy sensation over the surface of the body generally. Within forty hours before death, she had four very severe attacks of pain, which she called "spasms in the stomach;" the first was attended with a rigor and nausea; in the fourth attack, she shrieked loudly, raised herself in bed, or attempted to do so, and died instantly. Upon examination, the pericardium was found filled with blood, a

pint in quantity, partly coagulated, which had escaped from a rupture an inch long in the anterior wall of the left ventricle, parallel to and near the septum. In the ruptured part and near the apex of the heart, the muscular fibre had undergone complete fatty degeneration. In other parts, the muscle was perfectly healthy. That branch of the coronary artery which supplied this circumscribed, degenerated part of the heart, was almost closed by osseous degeneration of its coats. There was but little adipose tissue on the heart, although the body generally abounded with it. The liver was greatly enlarged and fatty; the other organs were healthy. (Condensed from *Lancet*, Dec. 27, for 1851.)

The following case was reported to the Pathological Society of London by Dr. Baly:—

Mrs. M. F——, aged 52, above medium height, fat, and of a leucophlegmatic temperament, of temperate habits. She had suffered mentally from severe domestic troubles. A little more than three years before her death, she was attacked with paralysis of right arm and leg, with loss of speech; there was neither loss of sensation of the affected side nor of consciousness. She recovered an imperfect use of the palsied muscles. She did not complain of short breath, palpitation, or faintness; but a sense of oppression in the chest, and a frequent desire to draw a longer breath than she could do. Pulse feeble; both impulse and sounds of the heart were feeble. Six days before her death, she complained of pain behind the middle of sternum, which confined her to the bed for three days. The day before her death, she appeared unusually well; the following morning expressed herself as feeling well; while washing herself, she raised her hands and expired instantly.

Upon examination, the basilar artery and the branches forming the sides of the circle of Willis were found opaque, rigid, and contracted. The parts of the brain supplied by these arteries alone presented the appearance of disease. The under surface of the crura cerebri was softened to a pulpy consistence for a line in depth; the left half of the pons varolii was flattened and contracted, and showed a loss of medullary substance, which extended to the medulla oblongata. The pericardium was distended with many ounces of serum, and a dark coagulum, which completely enveloped the heart. The base of the heart and right ventricle was loaded with fat for a space three inches square. The rounded part of the left ventricle was of a mottled dull yellow, or drab and pink colour, with no appearance of fibrous tissue. In the middle of this part, just behind the left convex border of the ventricle, there was a rupture of an inch, commencing half-way from the base to the apex, running towards the apex; nearly on a line, and below this rent, were two much smaller ones. The wall of the left ventricle was of normal thickness, its cavity enlarged, and more nearly globular than usual. It was in the dilated part that the rupture occurred. The mitral valve was thickened and opaque, the aortic were also thickened, and their free action hindered by a bony ring at their attached border. In the coronary arteries were numerous opaque and thickened patches of cartilaginous or fibro-cartilaginous structure. A branch of the left coronary, which ran to the degenerated part, was for three-fourths of an inch much enlarged, thickened, yellow, and rigid, and filled with a firm, dark coagulum, and its canal seemed obliterated at the very margin of the degenerated part. The other parts of the heart were healthy. The arch of the aorta presented many patches of atheromatous degeneration.

Various parts of the heart were subjected to microscopic examination; in

the septum, which appeared to the naked eye most healthy, a fibrilla here and there was seen degenerated; in portions from the right ventricle, which had a soft and unctuous feel, more fibrillæ were found degenerated; and in parts from the side of the rent scarcely a trace of normal muscular tissue could be seen; nearly all the primitive fasciculi had undergone fatty degeneration. The arcus senilis did not exist. (Condensed from *Lancet*, Jan. 31, 1852.)

This case is particularly interesting and instructive. It cannot be doubted, that the disease of the brain and of the heart was dependent upon the disease and obstruction of the arteries, impairing the nutrition of the parts they supplied. In fact, all the changes in the body may be referred to the diseased condition of the bloodvessels.

The yellow, opaque arc, or zone, called *arcus senilis*, often seen in the eyes of the aged, is another instance of fatty degeneration. It is particularly interesting in this connection, as it is supposed, by some, to furnish a diagnostic mark of the same change in the heart. To Mr. Edwin Canton is due the credit of elucidating the pathology of the arcus senilis. (The results of his researches are contained in the *Lancet* for May 11, 1850, and for Jan. 11 and 18, 1851.)

The senile arc is produced by a gradual transformation or degeneration of the tissue of the membrana propria of the cornea into fat-globules. From extended observation, Mr. Canton concludes that the senile arc rarely exists in persons under forty years of age. He mentions that he has seen only four exceptions to this rule; one was a sickly girl of sixteen, who had suffered from two attacks of choroiditis in the left eye; in the same eye there existed an arc. According to Mr. Canton's observations the arc rarely exists in one eye alone; where it does, it is owing to some local impairment of nutrition. Fatty degeneration of the ophthalmic artery frequently coexists with the senile arc. Mr. Canton found the upper arc the first to make its appearance. In regard to the senile zone as an index to a similar change in the heart, he makes the following assertion: "I have in no instance found the senile arc, when well developed, unaccompanied by fatty degeneration of the heart. The extent of degeneracy in this organ has appeared to me to bear a relation to the degree to which the cornea was invaded by the deposit." His observations, with the following exception, were confined to those advanced in years, and for a long time inmates of a workhouse: A man, aged 42, died of lumbo-pelvic abscesses; a well-developed senile zone existed in both eyes; *post-mortem* examination proved the coexistence of extensive fatty degeneration of the heart.

Dr. R. Quain mentions the coexistence of fatty degeneration of the heart and of the arcus senilis, in a man only twenty-eight years of age. Dr. C. J. B. Williams gives a table of twenty-five cases; in all, there existed the signs and symptoms of fatty degeneration of the heart; all but three were males, of ages varying from 45 to 77. In all but two the senile arc was to be seen more or less distinctly marked. In two cases, he proved the coexistence of these diseases by *post-mortem* examinations. Dr. Quain has the following

more cautious remarks upon this subject: "When the signs and symptoms of fatty degeneration of the heart are present the appearance of the cornea will greatly aid in the diagnosis. It must not, however, be forgotten that fatty degeneration of the heart may occur under circumstances, and at an age when we would not expect to find this lesion of the cornea; so likewise, but in a much less degree, we may expect to find the change of the cornea independently of change in the heart."

The value of the senile arc as a sign of fatty degeneration in other parts of the body depends upon its symmetrical development in both eyes. When it exists in one alone, it is due to some disease or accident which has impaired the nutrition of that eye alone.

The observations of Dr. E. B. Haskins, of Clarksville, Tenn.[1] are opposed to the conclusions of Mr. Canton. The number of cases is twelve, being all that came under his notice during three months. In his opinion, only two had any symptoms referable to the heart, and in one of these the palpitation was evidently hysterical. One had consumption, one dyspepsia, one paralysis agitans, and one other neuralgia; the other six were healthy. Three were under forty years of age, one was only twenty-seven, and of remarkable health and vigour, the oldest was ninety. Dr. Haskins found that the lower arc began first and was most fully developed.

Mr. Dalrymple states that the microscope reveals many oil-globules, and sometimes plates of cholesterin in the milky liquid of *soft cataract.*

One of the most interesting facts connected with this subject is that brought to light by the researches of Mr. Kilian, and confirmed by the observations of Mr. Rainey; it is this, that the normal process of restoration of the uterus, after parturition, to its ordinary state, is effected by the conversion of the now useless muscular tissue into oil or fat granules.

Mr. Rainey has given (in the January number of *Lancet*, for 1853) the results of the microscopic examination of the uteri of two women; one died three weeks after delivery; the other, aged thirty-six, died four weeks after delivery, of metritis and purulent absorption. Thin sections of the uterus, in both, exhibited unequivocal marks of fatty transformation of the muscular fibres; but it was better marked in the last, as might be expected, as a longer time had elapsed from the confinement of the patient to her death. The opinion of Mr. Rainey is, that this "change is most probably a normal one, and that it occurs in the muscular fibres of the uterus in all cases after delivery."

Fatty degeneration of the placenta should be mentioned in this connection. Dr. Robert Barnes read before the Medico-Chirurgical Society of London, May 13, 1851, a paper on this diseased condition of the Placenta; and its Influence, as a Cause of Abortion, Death of the Fœtus, Hemorrhage, and Premature Labour.

In this paper, Dr. Barnes gives two cases of premature delivery, both at

[1] American Journ. Med. Sci. Jan. 1853.

seven months; in the first there was hemorrhage at the third month, and at the time of delivery; in the second there was no hemorrhage. In both, the fœtus had been dead some time before labour commenced. Dr. Barnes describes the appearance of the placentæ thus: "The uterine surfaces were studded with fatty masses, varying in size from that of a bean to one mass, which was as large as a pigeon's egg." These masses were firm, of a yellowish-white, and bloodless.[1]

Dr. Hassall subjected to microscopic examination thin sections of these masses, also parts of the apparently healthy placenta; in the former, the degeneration was found complete; in the latter, it had commenced. The oil-granules were found in the chorion, the walls of the umbilical capillaries, and in the spaces between them. No blood was found in the vessels. Dr. Barnes thinks fatty degeneration of the placenta causes death of the fœtus by cutting off its necessary supply of blood. Dr. Barnes claims that, with the exception of a similar case recorded by Professor Kilian, his are the only recognized cases of fatty degeneration of the placenta reported.

Dr. Barnes read before the same Society, Feb. 22, 1853, a farther account of this degeneration. This paper contains the history of several cases observed since the publication of the former one. In the first case, the fœtus and placenta were expelled together, between the fifth and sixth months of pregnancy. Though, probably, some time dead, yet there was no sign of decomposition in fœtus or placenta. The uterine surface of the placenta resembled the outer surface of the brain, both in colour and in its divisions. There was no trace of healthy placenta. The lobes were of a pale yellow and glistening appearance, the sulci of a pinkish red, and along these lines the placenta drew an imperfect nutrition from the uterus. The degeneration had been gradual; and so completely had it arrested the circulation, that there no hemorrhage at the time of delivery. The microscope showed that the villi were much changed, the chorion mostly destroyed, and the nuclei in the coats of the capillaries enlarged and loaded with fat-granules.

In four other cases, reported by Dr. Barnes, of premature delivery, the placenta presented the same appearance of fatty degeneration. Delivery took place from the fifth to the eighth month; in each the fœtus had been some time dead. In two other cases, the abortion happened in the early months of pregnancy; was attended with some hemorrhage; degeneration of the placenta had not proceeded as far as in the others. In the last case, the child was born at the full time, alive and healthy. Fatty degeneration affected the placenta partially; but this change, probably, commenced near the close of pregnancy, and did not so interfere with the nutrition of the child as to prevent its reaching the full time. Dr. Barnes states, from his observations, that when fatty degeneration of the placenta is met with at the full time, it is usually found in the margin of the placenta, small in amount; not sufficient to change the

[1] Lancet, May 26, 1851.

structure of the tissue, or impede its functions. Dr. Barnes found the villi seldom affected by calcareous degeneration; and, except in very extreme cases, it did not interfere with the functions of the placenta.[1]

Dr. Robert Druitt read before the same Society, Jan. 25, 1853, a paper on Degeneration of the Placenta at the end of Pregnancy. The conclusions of Dr. Druitt are drawn from the microscopic examination of thirty placentæ, taken from women whom he had consecutively delivered. In all, he found either earthy or fatty degeneration, to a greater or less extent. He doubts whether a placenta at the full time can be found, free from traces of fatty and earthy degeneration; they may not, and usually are not found together in the same part, and to an equal amount. As the result of his investigations, he draws the following conclusions: 1. That incipient degeneration was a normal condition of the placenta at the end of pregnancy. 2. That it arose from partial cessation of the active functions of the organ, when the fœtal development was nearly completed. 3. That when it occurred in the earlier months, it probably arose from some antecedent want of nutritive force in the fœtus, or by its death.[2]

The analogy, that organs which have arrived at the fulness of their growth and the fulfilment of their offices begin to degenerate and give signs of incipient death, like the falling of the leaf in autumn, is hardly applicable to the placenta; for as the fœtus increases up to the time of delivery, it of necessity requires an increasing placenta, with the exercise of its full and perfect functions. Numerous and accurate microscopic observations, by capable observers, alone can harmonize the apparently contradictory results of the conclusions of Drs. Barnes and Druitt.

From facts at present in our possession, it is probable that a certain amount of fatty degeneration of the placenta, especially in its margin, can exist near the full term without interfering with its healthful and complete functions. In cases of premature labour, with fatty degeneration of the placenta, in some, this fatty change of the placenta is probably the primary trouble and cause of death of the fœtus, and of abortion; in others, this degeneration is the result of atrophy, or death of the ovum.

Fatty Degeneration of the Arteries.—Mr. Gulliver first demonstrated that the atheromatous patches, so often seen in the arteries, especially in the larger ones, consist of fatty matter, formed partly by degeneration of the middle or elastic coat, and partly deposited in granules and oil-globules, with scales of cholesterin, under the lining membrane. The elasticity of the artery being thus destroyed, and its strength impaired, dilation, aneurism, and rupture readily follow.

The fact that apoplexy is, in many cases, the effect of this atheromatous degeneration of the larger cerebral bloodvessels, and not of the congestion and escape of blood from healthy vessels, has been often noticed. Many cases

[1] Lancet, March 5, 1853.

[2] Ibid. Feb. 12, 1853.

illustrating this connection have been reported. The following case occurred at the Dexter Asylum in this city:—

Wm. B. M., aged sixty, married, of intemperate habits, by occupation a shoemaker, admitted into the asylum August 27, 1851. As he was delirious at the time of his admission, and continued so until his death, no history of the attack, or of his health previous to it, could be obtained. There was perfect paralysis of the left side; head hot; face deeply suffused; pupils natural; extremities inclined to be cold; tongue loaded with a yellowish-white fur; pulse seventy, full and hard. On the 29th, the palsied leg and arm were œdematous; tongue dry and brown; pulse small; delirium violent, with extreme restlessness. He died August 30. Upon examination, the coats of the arteries at the base of the brain were found studded with atheromatous patches. The arteries most diseased were the anterior cerebral and communicating. In the anterior lobe of the right hemisphere, near the base, a dark clot was found, and the brain-substance around it much softened; the arteries supplying this part were those most diseased.

Mr. Paget has recently pointed out the important connection of apoplectic seizures with fatty degeneration of the coats of the smaller bloodvessels of the brain. (The eleventh number of *Ranking's Abstract* contains a report of his communication to the Abernethean Society, in which are given the microscopic appearances in the cases illustrating this connection.)

According to Mr. Paget, in the earliest stage of this degeneration, "minute shining, black-edged particles, like molecules of oil, are thinly and irregularly scattered beneath the outer surface" of the capillaries, and of arteries and veins of small size. As the disease advances, the whole surface of the affected vessels becomes thick set with oil particles. The size of these particles also increases; in some vessels the granules are conglomerated into clusters of various shapes and sizes, instead of being uniformly scattered over their surface. Occasionally, the different branches of the same vessel will exhibit all these forms and degrees of change—the thinly and thickly scattered oil molecules, the clustered patches, and "the larger particles like drops of oil."

The structure, and, not unfrequently, the shape of the vessel, undergo a change as the degeneration becomes more developed. The proper fibrous tissue of the vessels wastes, and finally totally disappears. The vessels "appear like tubes of homogeneous pellucid membrane, thick set with fatty particles." Clusters of fat-granules raise the outer coat of the vessel, and give it an uneven and knotted appearance. Sometimes the oil particles are so numerous as to separate the cellular and middle coats for some distance; and occasionally the smaller vessels are dilated into partial pouches.

The smaller arteries and veins are most liable to fatty degeneration; the capillaries are much less frequently affected.

The muscular or transverse fibrous coat is the first and principal seat of this degeneration in arteries; in veins, it is the corresponding layer; in vessels made up of one single membrane, the fatty particles are deposited in its substance. But, in the advanced stage of the disease, all the coats become in-

volved; their proper tissue wastes, and unites into a single membrane, which is filled with the deposit.

Besides the cases of Mr. Paget, Mr. Barlow,[1] Mr. Robert Dunn,[2] and Dr. Babington,[3] have each reported a case of softening of the brain. In all, the microscope revealed far advanced fatty degeneration of the minute cerebral bloodvessels in and near the seat of disease.

The following is a brief abstract of the symptoms and morbid appearances in Dr. Babington's case:—

James N., aged 45, of regular and temperate habits, dark complexion, short and square-built man, general appearance strong and healthy, by occupation a warehouseman; his general health had always been good, had not been subject to headaches, but had had frequent attacks of epistaxis, especially after any violent excitement. All his family are healthy; none, to his knowledge, ever suffered from paralysis. He had lately married a young wife.

A day or two before the attack of hemiplegia, he had pain in the back part of his head. On the day of the attack, he had a severe diarrhœa, which was relieved by two or three doses of brandy and opium. In the evening, while taking tea, he was suddenly seized with complete paralysis of motion of the left side, loss of speech and increase of pain in head, without loss of sensation or of consciousness. In a few hours, he partially recovered from this loss of motion; but on the following morning the paralysis was again complete.

Delirium came on, and he complained of severe pain in the head, also of pain in the palsied side. Upon admission to the hospital, these symptoms continued. The pupils, sight, and muscles of eyes and eyelids were unaffected; sleep natural; appetite good; pulse 72, small, hard, and labouring; mouth drawn towards the right side; left hand and arm little œdematous.

Treatment.—Cupping, mercury, and cathartics. On the 34th day from the attack bronchitis supervened. On the 67th, he died. He was delirious through the whole course of the disease.

Upon examination, the convolutions of the brain were found atrophied; the interspaces filled with clear serum; brain firm; ventricles large and dilated, containing but little fluid; the posterior part of the corpus striatum was found softened, flocculent, and of a yellowish-brown colour; the anterior portion of the thalamus opticus was also slightly affected. The coats of the large and small bloodvessels contained extensive atheromatous deposits; and this was particularly the case with the arteries supplying the softened portions. The right ventricle was loaded with fat; the left ventricle of the heart was hypertrophied, pale in colour, mottled on its inner surface, and its walls had undergone fatty degeneration. The arch of the aorta was dilated and atheromatous throughout its whole extent. The arteries of the body were generally diseased. The kidneys were atrophied, the liver atrophied, and part of it had suffered fatty degeneration.

Dr. Dittrich has observed fatty degeneration of the arteries of the lungs, in cases of pulmonary apoplexy, similar to that described by Mr. Paget, in the arteries of the brain. Dr. Dittrich found, in a large majority of cases of pulmonary apoplexy, this fatty transformation of the coats of the large and small vessels, but more especially of the smallest vessels.

[1] Lancet, May 24, 1851, p. 577.

[2] Ibid. Oct. 26, 1850, p. 473, and Nov. 2, 1850, p. 499.

[3] Ibid. Oct. 30, 1852, p. 400.

Dr. Charles Shearman has observed the same fatty transformation in the substance of a minute vessel of a degenerated heart.

Fatty Degeneration of the Kidney.—Dr. George Johnson claims to have discovered the true pathological change in Bright's disease of the kidney. According to his observations, this change consists in a gradual degeneration of the kidney, beginning with an abnormal deposit of fat-granules in the epithelial, or secretory cells lining the uriniferous tubes, and in the tubes themselves.

Drs. Johnson and Frierichs believe that a small quantity of fat normally exists in the epithelial cells. Dr. Gairdner never has observed it, except the kidney be diseased.

Dr. Johnson explains the atrophy of the kidney, and the presence of albumen in the urine by the mechanical effects of the fatty deposit. As this increases, the circulation through the plexus of veins, that surround the uriniferous tubes, is impeded, and of necessity the capillaries of the Malpighian corpuscles become congested with blood. This congestion of the capillaries is relieved by the serum transuding through their walls, and mingling with the urine, or by rupture of the capillaries, allowing the fibrin and red corpuscles also to mix with the urine. This view makes the congestive stage secondary to that of deposit. Dr. Johnson thinks that upon the greater or less rapidity of the deposition of fat depends the variety of the disease. He also believes the disease to be of constitutional origin, like fatty liver, and to require constitutional rather than local treatment. Dr. Johnson usually found fatty degeneration of the kidney accompanied by the same change in other organs, especially the liver and coats of the arteries. This abnormal deposition of fat-granules in the Malpighian corpuscles, in the uriniferous tubules and in the interstitial substance, between the bloodvessels and secretory apparatus in Bright's disease, had been observed and described by several German and French pathologists, previous to the publication of Dr. Johnson's paper in the *Medico-Chirurgical Transactions* in 1846.

Mr. Toynbee agrees with Dr. Johnson as to the deposition of fat-globules in the secretory cells and in the tubuli uriniferi; but differs from him in regarding congestion as a necessary antecedent to this change.

Gluge, of Brussels, from observations made in 1840, concludes that the phenomena of Bright's disease are produced by different pathological changes in the kidney; the most frequent changes are fatty degeneration and lesions resulting from inflammation. His *Pathological Histology*, recently translated by Leidy, contains a table of 12 cases of disease of the kidney, in most of which albuminous urine was a symptom; in 7 of these cases, the microscope revealed deposition of fat-granules in the tubuli uriniferi and in the interstitial substance of the kidney. In some of the cases, the tubuli were filled with oil-globules; and in one, the Malpighian corpuscles were distended with molecules. Fatty degeneration of the liver coexisted in several cases.

Dr. Williams, in his *Principles of Medicine*, claims to have described this

increase of fat-granules in the kidney before Dr. Johnson even made his researches; but says: "I have never seen in the kidney anything at all approaching to the condition of the fat liver, in which both cells and interstitial textures are completely glutted with oil-globules." He found fatty degeneration of the liver, spleen, and other parts of the body coexisting with fatty kidney.

Simon, in his *Lectures on General Pathology*, thinks the opinion that the accumulation of fat-granules in the tubuli uriniferi, as a primary deposit, and as the proximate cause of the scrofulous form of Bright's disease, not supported by conclusive evidence. He thinks the deposit of granules is not sufficient to account for the destruction of the tubules and the serous or fibrinous infiltration of the kidney, which, he states, always exists when it is extensively affected with this disease. The tubules of the kidney of the cat, he states, almost invariably, and, he thinks, abnormally contain a large quantity of oil; and though the accumulation is much greater than is ever observed in the human kidney, yet it does not often, if ever, destroy the tubules, or interfere with the function of the organ or health of the animal.

Dr. Frierichs (*Ranking's Abstract*, No. 15) divides the morbid appearances presented by the kidney in Bright's disease into three states: 1. State of hyperæmia. 2. State of exudation and commencing transformation of the exudative matter. 3. State of degeneration and atrophy.

In the first stage or state, the epithelial or secretory cells are not materially affected; but the tubuli uriniferi, especially of the cortical portion, are usually filled with coagulated fibrin. Sometimes, these coagula are simply casts of the tubuli; at other times, epithelial cells, and changed blood-corpuscles are imbedded in them. This state is often attended with effusion of blood from the Malpighian corpuscles or capillary plexus surrounding the tubules. This condition was observed only in violent and rapidly fatal cases. Frierichs gives 20 cases out of 292 deaths from this disease.

In the second stage, the congested condition is less marked, and that of exudation is increased. The fibrinous coagula in the tubuli degenerate into fatty particles. In the Malpighian corpuscles, fibrinous exudation is seen, which also in time degenerates into fat-granules. The epithelium of the tubuli, particularly of the cortical portion, undergoes a complete transformation; its cells lose their proper form, and become more or less infiltrated with fat-granules; thus, it at last loses its characteristic appearance and function, and becomes degenerated into granular detritus and fat. This condition Frierichs observed in 139 out of 292 cases examined.

In the third stage, the kidney becomes atrophied. The degeneration of the coagula in the tubuli and in the Malpighian corpuscles, and the transformation of the epithelium, are completed; their removal causes collapse of the walls of these structures, and atrophy. In a few instances, atrophy was produced by the contraction of plastic matter effused into the interstitial tissue.

Dr. Frierichs mentions apoplexy, suppuration, cystic formations, calculous

deposits, and tubercle, as accidental anatomical changes of the kidney in this disease. He states that in a hundred parts of healthy dried kidney, the fat varies from four and four-tenths to five and five-hundredths. In Bright's disease, it varies from four and four-tenths to thirteen and nine-tenths. Generally, the amount of fat was greatest in the third stage. Chemical analysis reveals less fat than the microscope would lead us to expect; therefore, Dr. Frierichs concludes, we are not justified in naming as fat all those particles which look like it. Dr. Frierichs found the percentage of fat in the kidney of the cat and dog to vary from twenty-seven and two-tenths to thirty-two and five-tenths. The animals were in perfect health, and their urine did not contain any albumen. This last view of the pathology of Bright's disease more satisfactorily explains all the phenomena it presents.

Fatty Degeneration of the Liver.—A liver that has undergone this change is enlarged, paler, softer, and more unctuous in its feel than natural; of low specific gravity (sometimes lighter than water), and greases paper when heated upon it. The hepatic cells, which make up most of the parenchyma of the organ, naturally contain oil-globules. Dr. C. Hanfield Jones, in a very elaborate paper on the *Structure, Functions, and Diseases of the Liver* (read before the Medico-Chirurgical Society of London, and reported in the August No. of the *Lancet* for 1852), states, that he found the quantity of oil in the cells to vary greatly in different classes of animals, and also in the same individual. He believes the hepatic cells contain oil, sugar, and a yellow pigment, but no bile; he found bile only in the ducts; that is, the cells contain the elements of bile, but the combination of these elements, so as to make bile, is effected by the ultimate ends of the bile-ducts.

From microscopic examinations in 1841, Mr. Bowman came to the conclusion that fatty degeneration of the liver depends on a simple increase (but sometimes to a very great extent) of the oil-globules normally existing in the hepatic cells. This theory is taught in the works of Drs. Budd and Williams, and Mr. Simon. But Dr. C. H. Jones holds the opinion that it is not a simple increase of the oil-globules naturally existing in the hepatic cells. He found, upon examining the livers of animals fed on oil, that both the cells and intercellular substance were equally gorged with oil-molecules. But in fatty degeneration of the human liver the oil-globules appeared inclosed in an "indistinct and granular, or semifibrous substance;" but not contained in distinct cells. The liver of an animal fed on oily food to produce fatty liver, contained sugar in the cells; but in true fatty degeneration sugar is not found. Also, in true degeneration of the liver the disease affects only the marginal cells of the lobules, so that each lobule is surrounded by a zone of opaque matter; and these marginal cells are not merely loaded with fat particles, but destroyed. No satisfactory reason is known why the degeneration should be confined to the marginal cells. Dr. Budd states that the quantity of oil in this disease sometimes equals the weight of all the other elements of the liver. Though most frequently met with in cases of consumption, yet it occurs in

other diseases. Dr. Budd mentions meeting with it in two cases of chronic dysentery, also in one of cancer, and cites another case from Cruveilhier. Rokitansky thinks fatty liver belongs to the tubercular diathesis. He has found this condition of the liver in tuberculous disease of the mesentery, lymphatic glands, bone, and of other organs, even when there were no tubercles in the lungs, as well as in consumption. Louis, Budd, and Williams, all agree in its being most frequently met with in females. Louis found the proportion as high as four to one. Fatty degeneration commonly affects the whole liver equally, yet it sometimes affects a very small portion. This, of course, is dependent on some local cause. Dr. Budd met with three cases in one year.

The *gall-bladder* is another organ, in which fatty degeneration sometimes occurs. When thus diseased, its coats present a thickened and opaque appearance, and under the microscope numerous oil-globules and scales of cholesterin are seen. Phosphate of lime is often found with the fat particles, and, sometimes, to such an extent as to form of the bladder almost a bony cyst. In all these respects fatty degeneration of the gall-bladder is analogous to atheromatous disease of the arteries. This degeneration of the bladder is sometimes complete, at others, only partial. Dr. Budd found it only in the aged, and more frequently in females than in males.

The *spleen* is occasionally found to have undergone fatty degeneration.

Rokitansky states, that "the pancreas is liable to excessive accumulation of fat, which may terminate in the conversion of the entire organ into one mass of fat. When the disease has attained its extreme limit, a mere pultaceous strip of fat, retaining the general outlines of the gland, is found in its place; only scattered remains of the acini are discoverable; and in the delicate and thinned duct there is a whey-like, fatty fluid. The disease occurs frequently in drunkards, associated with fatty liver."

Gluge, in his *Pathological Histology*, describes and figures two cases of partial fatty degeneration of the *pancreas*. He also describes and represents the same change in the tubuli seminiferi of the *testicle* of a dog, whose other organs were healthy.

Dr. Walshe states that the *human testis* is liable to fatty degeneration. Mr. Curling gives a case of atrophied testicle which had undergone this change.

Dr. C. Hanfield Jones (*British and Foreign Medico-Chirurgical Review*, April number, 1853) describes fatty degeneration of the cortical portion of the *suprarenal capsules* as of very frequent occurrence in man, and occasionally met with in animals.

According to the observations of Dr. Jones, the normal atrophy of the thymus gland takes place by accumulation of fat in the interstices of the thymus tissue, destroying it by pressure, as in the disease of the pancreas, described by Rokitansky. But Mr. Simon describes cases of true fatty degeneration of this gland. Dr. Jones gives one instance of fatty degeneration of the *thyroid gland*.

Mollities ossium is, according to the observations of both Paget and Quekett, an instance of fatty degeneration in the osseous tissue. Quekett, from numerous microscopic examinations of bones thus affected, concludes that the diseased process commences in the lacunæ or bone cells, which increase in size by the absorption of the earthy granules from the walls of the cells; the canaliculi disappear, and several cells unite and form a cavity, in which oil-globules are soon deposited. Mr. Paget thinks the fatty matter results "from the conversion of the cartilaginous basis into fat." The walls of bones thus diseased are very brittle, thin, transparent, and so soft as to be easily cut with a knife. Not only the medullary cavity, but all that remains of the cancellated structure of the bone is filled with oil. Mr. Hunter describes bone thus affected, as "resembling a species of fatty tumour, and giving the appearance of spongy bone, deprived of its earth, and soaked in soft fat."

The oil presents various shades of colour, being "bright yellow, pink, and deep crimson."

The quantity of fatty matter found in healthy bone is from two to three per cent. A specimen of bone affected with mollities ossium, analyzed by Dr. Garrod, yielded twenty and one-third per cent. of oily matter. Analysis of Lehmann yielded from twenty-nine to thirty-four per cent.

It would appear that two distinct diseases have been described under the name of mollities ossium; true fatty degeneration, and simple softening of bones from absorption of the earthy particles, leaving the true cartilaginous basis, which is soft, tough, and flexible, not brittle, as that described above. Cases of simple softening have been described by Rokitansky, Bruce, Jones, and others. They occur most frequently after childbirth.

Mr. Adams, in a communication to the Pathological Society of London (Report for 1848–49), describes fatty degeneration of *cartilage*. According to his observations, the solid contents of the cartilage cells are first converted into very minute spherules of oil; subsequently, these spherules of oil coalesce and form globules of different sizes, which distend the cells; still later, the cell-membrane disappears; and lastly, the intercellular matrix undergoes the same fatty degeneration as the cells. The disease commences on the free surface of articular cartilages.

Causes of Fatty Degeneration.—For the following reasons Mr. Paget concludes that fatty degeneration is a form or manifestation of atrophy, the consummation and result of atrophy: 1. The frequent coincidence of fatty degeneration with emaciation and diminution of size of the part. 2. The existence of fatty degeneration under circumstances which, in other instances, give rise to simple wasting of the same part. 3. The frequent occurrence of fatty degeneration with senile atrophy. 4. The absence of the nucleus (which all physiologists agree is the active agent in the changes which the cell effects) in both atrophy and fatty degeneration. Mr. Paget does not regard the fatty matter, in such cases, as "a new deposit, but as one of the products of the spontaneous transformation of the tissues at the end of their proper periods of

vigorous existence; so that this condition represents the state of a tissue remaining unrepaired, after it has fallen into the ordinary course of degeneration." The fat-granules, in degenerated muscular fibre, are frequently seen arranged in longitudinal or transverse lines, like the healthy elements of the fibrillæ. Under the term atrophy, are comprehended all degrees of impairment of nutrition, from the slightest to the most striking wasting of the tissues, seen in consumption and other chronic diseases. True atrophy occasionally coexists with seeming hypertrophy, as in the hypertrophied heart and bladder, already mentioned, where the microscope revealed fatty degeneration of the fibres. Fatty degeneration being the result of impaired nutrition, its causes will be best learned, as Mr. Barlow has suggested, by considering the conditions admitted to be essential to perfect nutrition, and then looking to the results of the failure of these conditions. Mr. Paget, in his *Physiology*, gives the following as the conditions essential to perfect nutrition: 1. "A right state and composition of the blood. 2. A regular and not far distant supply of such blood. 3. A certain influence of the nervous system. 4. A natural state of the part to be nourished." Fatty degeneration may result from the failure or defect of any one of these conditions.

1. The right state and composition of the blood consists in a certain adaptation between the blood and the tissues, and also each part of every tissue; and upon the maintenance of this perfect adaptation depends the continuance of healthy nutrition. The blood is modified by age, it may be said to grow old. In the aged, we most frequently meet with fatty degeneration of the various tissues. This degeneration, occurring late in life, can hardly be called abnormal more than decay and death in the vegetable world. But degeneration is impatient, and anticipates time. Instances of fatty degeneration have been observed at eight and six years of age; and one case of degeneration of the small cerebral vessels in a child of only nineteen months has been reported. This premature degeneration is often induced and hastened by numerous local and general diseases, in which the blood is impoverished and its composition rendered defective. In anæmia, hemorrhage, Bright's disease, organic disease of the heart, marsh cachexia, and in most chronic diseases, the blood is deficient in the red corpuscles; in Bright's disease, marsh cachexia, cancer, and in the last stage of disease of the heart, the albumen is diminished; and in disease of the heart and chronic scurvy the fibrin is deficient. In lingering and wasting diseases fatty degeneration of a vital organ frequently coexists; a complication full of peril, which should be watched for, and, if possible, detected. During chronic diseases sometimes, upon some slight exertion, a patient turns pale and expires in a moment; the heart is at fault; its fibres are so degenerated they no longer respond to the stimulus of the organic nerves.

A mulatto woman, of about thirty-five years of age, was admitted into the Dexter Asylum in the afternoon; she had been suffering from a severe diarrhœa for some time; during the night, she got up to use the close-stool, and

died instantly. Upon examination, the fibres of the heart were found to have undergone fatty degeneration. It is to be feared that large and frequent losses of blood by the lancet, as well as by disease, have sometimes aided in producing, and often greatly aggravated fatty degeneration when present.

2. A regular and not far distant supply of healthy blood is a condition essential to perfect nutrition. Hence, all general or local obstructions to the circulation must impair nutrition. The supply to any part may be rendered insufficient by obstructions at the inlets and outlets of the heart, acting as partial ligatures on the circulation; by changes in the coats of the arteries, diminishing their caliber; or by clots completely filling them; and by fatty degeneration of the coats of the minute vessels. Whether these local obstructions to the circulation shall result in atrophy, degeneration, or death of the part, depends upon the state of the neighbouring vessels, which may be too degenerated themselves to enlarge and supply the necessary blood. Degeneration of the arteries may be so general as to prohibit the application of a ligature to an aneurismal vessel, especially if there is reason to think the heart fatty or feeble. The comparatively frequent fatty degeneration of the heart has been explained by the want of free anastomosis of the coronary arteries.

3. The question of nervous influence upon nutrition is very complex; but to measure the influence of its derangement or withdrawal, in the production of atrophy and fatty degeneration, and to separate it from other causes acting at the same time is still more difficult, a still more complex problem. But that the brain does have, not only an indirect but also a direct influence on nutrition, is a matter about which there cannot be much doubt. A depressed state of mind interferes indirectly with nutrition by withholding the body from exercise and relaxation, which are necessary to its perfect health; by weakening the heart's action, so the blood is not circulated with the necessary force and frequency; by lessening the amount of air respired, thus rendering the oxygenation of the blood imperfect; by impairing the digestive process, so an imperfect chyle is supplied to the blood; and, frequently, by preventing or disturbing sleep. That the emotions of the mind directly affect nutrition may be inferred from their known influence upon the different secretions in health. Hence it is highly probable, that deranged nervous influence predisposes to degeneration, and aggravates it when it already exists. Cases of softening of the brain have been recorded, which were mainly attributable to grief and mental anxiety. Dr. Quain has reported several cases of fatty degeneration of the heart, in persons who had suffered much from mental anxiety. Three of these cases resulted in rupture. The expression, "died of a broken heart," in these cases was literally true. Drs. Ormerod, Daniell, and others, mention like cases.

Quekett found, from numerous examinations, that simple atrophy, not fatty degeneration, followed the withdrawal of nervous influence in cases of paraplegia from disease or fracture of the spine.

4. The fourth condition necessary to perfect nutrition is a healthy state of the part to be nourished. Each part and tissue has a special life of its own, dependent on the vitality of the whole organism, partaking of its hereditary strength or weakness. Each tissue has its own peculiar and discriminating process of assimilation; it may die prematurely, or remain perfect upon the death of the rest of the body. Assimilation is the formation of new parts, like those already existing; whether the latter be normal or abnormal, the same structure is perpetuated. If a part is healthy, it is likely to remain so; if altered, the alteration is maintained. Thus, the form and size of a cicatrix remain the same for years. But, opposed to this law, there exists in nearly all altered parts, a tendency to regain the normal state, and often, in time, this state is recovered; the scar, as it were, wears out.

A simply atrophied tissue can be restored; but whether a tissue, affected with fatty degeneration, can recover its lost structure is yet an unsettled question. There is some reason to believe it can. Mr. Charles Simpson reports a case in which a well-marked arcus senilis disappeared. This is another instance in which the eye affords an opportunity to watch the changes taking place in the body. The fact already mentioned, that the fibres of the uterus, after delivery, undergo fatty degeneration, and new ones are developed when it again resumes its functions, would lead one to think that the process was not one of absolute and irrecoverable destruction. But, even granting that a fibre affected with fatty degeneration is immediately destroyed, degeneration of the remaining may be arrested, and new vigour infused into the organ by enlarging and strengthening the adjoining undestroyed fibres. In the young, the middle-aged, and even in the old, where much uninjured tissue remains, we may reasonably hope to counteract the effects of fatty degeneration by restoring vigour to the surrounding structures. Dr. Quain found very great benefit to follow from proper treatment; greater, of course, in cases of premature decay than in the aged. The length of time the tissues remain perfect in some cases, is not less wonderful than their premature decay in others. Mr. Canton, in his researches with regard to the senile arc, gives the case of a man aged 103. The cornea was free from the arc, and the microscope revealed only a very few fat-granules; in the fibres of the heart, there were only two or three limited spots of fatty degeneration.

It is the vital principle—ψυχη of Aristotle—the animating principle of Harvey, the organic force of Müller, and the organic agent of Prout, however vague and imperfect our ideas of this principle are; yet it is this power, or combined power of life, that preserves our bodies in integrity, and prevents those changes which we call *death.*

When fatty degeneration occurs as a general disorder, affecting many organs and tissues, it is most frequently met with in those of feeble circulation and imperfect respiration, in the aged, the cachectic, the habitually intemperate, and especially in the scrofulous. So frequently does the tubercular diathesis associate with itself fatty degeneration of certain organs, that Mr. Simon

believes that some essential relation exists between them. "Degeneration," says Dr. Prout, "appears to be connected with, or to result from, the gradual decay of the vital processes in general, and particularly of the processes of assimilation. It is, therefore, the natural and universal consequence of age; but it may arise in early life from a variety of causes, among which the most frequent are: 1. An inherited and innate weakness of the vital powers, either as they exist in the system generally, or as they exist in particular organs. 2. An acquired weakness of the vital powers in general, or as regards the vital powers of particular organs, produced by a variety of slowly-acting causes; such as long-continued errors in eating and drinking, long exposure to the influence of unhealthy situations, or of occupations unfavourable to the general health.

When fatty degeneration is limited to one organ, or part, it is usually the effect of some previous disease or accident, which prevents a free supply of blood to the organ or part.

All animal substances, whose elements are held together by the feeblest affinities, soon undergo fatty degeneration. Thus lymph, effused into the lungs, liver, kidney, or testicle, in low chronic forms of inflammation, in gangrene; imperfectly organized lymph upon serous membranes; crude and softened tubercular masses; cancerous growths; fibrinous vegetations on the valves of the heart; and pus, all give the clearest evidence, under the microscope, of being principally made up of fat-granules. The artificial formation of adipocire, from nearly all the soft tissues of the body, most clearly shows that the process of fatty degeneration depends upon the prevailing of the *chemical affinities* over the *vital powers.* Whenever and wherever fatty degeneration occurs, it is the result of mal-nutrition, a process of decay, a degradation of the protein compounds to the lowest in the animal and vegetable kingdoms. It enfeebles the vital and physical properties of all the organs and tissues it affects; by it, the muscles lose their contractility, the heart is enfeebled and dilated, and may be ruptured; it injures the elasticity of the arteries, causes aneurisms and their rupture; it clogs the cells, ducts, and vessels of the secretory organs, and thus interferes with, and sometimes completely prevents the performance of their functions.

There are many more important facts connected with this interesting subject, which have been brought to light by the researches of living pathological microscopists, and published in the various medical journals.

Whatever answers future discoveries may return to such questions as the following: Does the process of fatty degeneration consist in a tendency to deposit oil instead of healthy tissue, or does the low vitality of the part only admit of the deposit of fat-granules, as the substance possessing the lowest degree of vitality; whether the fat-granules in the degenerated tissue are capable of farther transformation or removal, or whether this must be considered a final stage in the vital processes of the organism?—whatever solution science may hereafter return to such questions as these, the practical

importance of this subject to the practising physician must ever be great, not only from the number of organs and tissues it affects, but also from the vast number of pathological conditions it alone explains. He must ever be on the alert to detect it; and, where it exists, it must, to a greater or less extent, modify his practice.

Treatment.—From what has already been said upon the causes of fatty degeneration, the course of treatment most likely to stay the progress of the disease, and, if possible, to restore the degenerated tissue, is readily inferred; namely, to sustain the vital powers, and preserve the organic functions in due activity; to improve the condition of the blood, making it rich in highly vitalized fibrin and albumen, by a diet of lean meats, bread, and succulent vegetables, excluding all articles rich in fat, with sparing use of sugar and fermented liquors; to promote free circulation and full respiration, by regular exercise in pure air; to restore healthy action of the skin, by bathing and friction; and to keep up a full and healthy action of the bowels. The tonics, iron, bark, and the mineral acids, especially the nitro-muriatic, have been found to be of decided utility. From the tendency which the fatty matter in degenerations has to assume the solid form, Dr. Williams suggests the use of cod-liver oil as a solvent of the fatty concretions.

Art. III.—*New Mode of Extension in Fractures.* By Josiah Crosby, M. D., of Manchester, N. H.

The great objects to be accomplished in the treatment of fractures—apposition and rest—are well understood by every surgeon; how to accomplish these objects has not been so well settled.

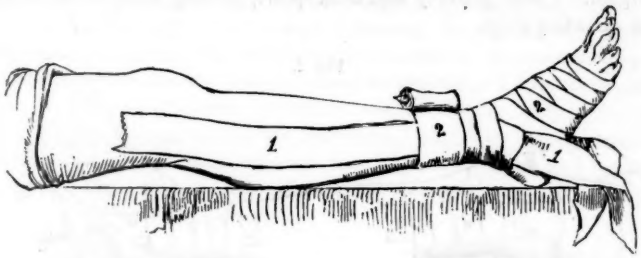
In transverse fractures of the leg there is very little difficulty in the treatment. I shall, therefore, confine my remarks to oblique, compound, and comminuted fractures, and to such of these only as require permanent extension.

A great variety of splints has been invented for the permanent extension of broken legs, many of which would accomplish the object in a very satisfactory manner, but for the great difficulty in attaching the limb to the extending force. The garter, cravat, and shoe, with many others, have been tried, and condemned for producing pain, inflammation, and sloughing. It is to this cause more than to all others we are to look for the shortening and deformity of so many broken legs.

Fig. 1 represents the application of strips of adhesive plaster to the legs by which we attach the limb, in case of fractured thigh, to whatever instrument is used for permanent extension. 1 1 represent strips of cotton cambric spread with common adhesive plaster, to be applied one on each side of the

leg, long enough to extend from above the knee to the ankle, the ends from the ankle hanging loose below the foot several inches, unspread, to be tied to

Fig. 1.



the instrument by which extension is made. These strips should be from two to five inches wide, according to the size of the limb, and should be recently spread. The leg should be shaved before the plasters are applied. 2 2 represents a roller applied from the toes to the knee, to confine the adhesive strips to the leg, and prevent swelling.

This is the method of applying the extending force, which I used, for the first time, in 1849, and which I have reason to believe had never been suggested to the profession in a manner to attract the attention of surgeons, until it appeared in Prof. Mussey's *Surgical Report* to the American Medical Association, at their session in Cincinnati, in 1850.

By this method, any necessary amount of force may be applied for the purposes of *setting* the bone and keeping the limb sufficiently extended without pain or inconvenience to the patient.

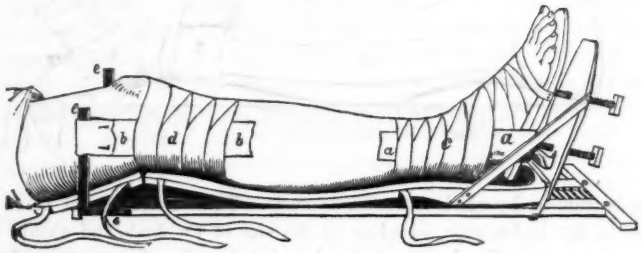
Having found this method of extension so satisfactory to myself in the management of several cases of fracture of the thigh, and from the opinions expressed to me of its superiority over all other methods by Professors Mussey, Parker, Kimball, and Crosby, and also by the distinguished surgeons of the Massachusetts General Hospital, where it was early introduced, I was induced to try it in fractures between the knee and ankle, to produce both extension and counter-extension in all injuries requiring such extension.

Fig. 2 represents Goodwin's splint,[1] with the addition of the irons, *e e*, screwed to the edges of the base of the splint, four or five inches above the knee-joint; *a a* are strips of adhesive plaster applied one to each side of the ankle, higher or lower, according to the location of the fracture; *b b*, adhesive strips running from below the knee upwards, to be passed round the irons *e e*, and pinned below them; *c*, strips to be passed round the foot and ankle, to

[1] Goodwin's splints are now in very general use in this part of the country, and may be obtained by addressing an order to the present proprietor, Henry S. Smith, Ashfield, Mass.

keep the longitudinal strips firmly attached, and to prevent swelling; *d*, strips to pass round the leg below the knee, to fasten the longitudinal strips. The circular strips may be spread with adhesive matter, or not, as may suit the surgeon. I have generally used them spread, as being more certain to hold the extending strips.

Fig. 2.



My method of dressing a fractured leg below the knee, requiring extension, is in the first place to shave the leg, and then apply fresh-spread adhesive plaster, as represented by the plate, then to place on the splint a cushion of some sort, extending from a little below the foot to the knee; on this lay a piece of oiled silk, to keep the cushion from becoming wet; on this place a many-tailed bandage, in strips; having made these preliminary arrangements, and screwed the foot-board as high up as possible, assistants should raise the leg so high that the splint, with all its appendages, can be placed under the limb, letting the foot rest against the footboard; the foot is now to be made fast to the extending apparatus by tying the floating ends of the longitudinal strips to the footboard. The assistant is now to extend the limb upwards on the splint, as far as he can easily, and hold it while the surgeon pins the loose ends of the adhesive strips, above the knee, around the irons *e e*.

The whole thing is now completely under the control of the surgeon; he can extend the limb by turning the screws until it is at its full length. This may be accomplished at once, or he may be several days in doing it. When the limb is extended as much as is desirable for the first dressing, one course of the many-tailed bandage should be folded over it, and kept wet with cold water. The limb should be treated in this way for several days, until the inflammation and swelling have somewhat abated, daily making extension until the limb is at its proper length. When these objects are accomplished, as early as the tenth or twelfth day, if the extension alone be not sufficient to maintain perfect apposition, after applying one course of the many-tailed bandage, as before directed, binders'-board splints may be applied, and secured by the other folds of the bandage.

The advantages of these dressings are, that the surgeon can *set* the leg with much less difficulty to himself, and with much less pain to the patient; that

extension can be more perfectly maintained; that in the inflammatory stage he can dress the limb much more loosely, and can apply his evaporating lotions with better effect; and if the fracture be a compound one, requiring to be dressed daily, it can be done with less danger of deranging the fracture.

It has been objected to this method of dressing, that the adhesive plaster will irritate the skin so that the patient cannot bear it. There may be occasionally a case of this sort, but they must be very rare; I have never seen one. In a case of compound comminuted fracture of both bones of the leg, not more than two inches above the ankle-joint, I kept these dressings applied *without change*, and without irritation, sixty days, and got a sound leg, and of proper length, after the removal of several pieces of bone.

MANCHESTER, N. H., Nov. 2, 1853.

ART. IV.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

August 22. *Sunstroke.*—Dr. J. B. S. JACKSON reported the following case: An Irish labourer, 25 years old, was brought into the Massachusetts General Hospital about 4 o'clock P. M. of the 13th of August, in a state of complete coma, being perfectly unconscious. Surface of the body warm; pupils of the eyes much dilated; pulse 120, very full, but readily compressed; breathing almost stertorous. His friends stated that this state had continued for about an hour, and that it supervened suddenly while he was at work in the sun. Slight delirium subsequently manifested itself. Ice was immediately applied to the head and warmth to the feet, and the following enema administered, viz.: Olei tiglii, guttæ ij; olei olivæ ℥iss; in a pint of soapsuds. Free alvine evacuation was thus procured, and the patient soon began to show signs of consciousness.

14*th*. The following draught was given: ℞. Magnesiæ sulphatis ℥j; tincturæ sennæ compos. ℥ij; solve. Free operation from the medicine.

16*th*. The patient was discharged well.

Dr. Jackson asked if other members had lately seen cases, or would refer to any and to the modes of treatment found most efficacious.

Dr. PARKMAN mentioned the cases related by Andral in his *Clinique Médicale;* the necroscopic appearances are there detailed.

Dr. CABOT said that hot baths and stimulants were found very successful in one of the New York hospitals some years since. Bleeding did not answer in the cases then and there observed.

Dr. BIGELOW, Sen., saw a case on Sunday last—an Irishman. The pulse was small and rapid; and the patient, indeed, seemed moribund when Dr. B. first saw him; and, in fact, soon died. He had been walking for a long time exposed to the direct rays of the sun.

Dr. STRONG, several years since, saw a number of cases. There seem to be *two classes* of cases. In one the prostration of the system is marked and sudden; there is coldness of the surface, and the pulse is low; this state is

succeeded by a hot stage with very strong pulse; then coma and death occur, if there be no remedial interference. In certain cases, the last-named stage is not observed to occur; the patient is as if intoxicated, or as if he had received a severe blow on the head. Dr. S. referred to one case which he saw when the patient was just dying. The body was very hot and the appearance of the patient entirely apoplectic. An emetic had been administered by a physician who first saw the patient; previous to taking this, the patient was entirely rational; afterwards, the apoplectic state rapidly came on.

Dr. COALE related two cases which he observed at sea in a tropical climate. While bringing the ship to anchor under a vertical sun, an old sailor dropped under sunstroke. A great lack of impressibility by remedial measures was remarked in this case. Blisters made no impression; death followed in the course of the day. The next day, a young sailor was stricken down by the same cause. Dr. C. also mentioned the case of a watchmaker, in Boston, who was senseless from sunstroke through an entire day. The pulse very small; being cautiously bled at first, the pulse was found to rise, and then bleeding was practised quite freely, with benefit, recovery ensuing. The patient, however, was obliged to quit his occupation.

The SECRETARY refers, in this connection, to a case where stimulants, internally and externally, were alone serviceable, and, indeed, indicated; the patient, an athletic Irish labourer, having, after being at work in the sun, fallen suddenly and remained a long time in a state of collapse from which he was with difficulty recovered. He is now well, with no noticeable consequent effects.

Ovarian Dropsy.—Dr. HAYWARD, Sen., related the case of a female, 31 years of age. She was tapped for the first time in May last; the quantity of fluid evacuated was enormous, viz.:—

May 19. Forty-five pints.
July 13. Forty-two pints.
August 17. Forty-eight pints.
September 12. Forty-seven pints.
Total, one hundred and eighty-two pints in less than four months.[1]

The consistency of the fluid was that of purulent mucus; each pint weighing exactly one pound; the patient extremely emaciated. Dr. H. remarked that he always tapped patients in the upright position, and he had never known one to faint. The many-tailed bandage is first applied around the abdomen. He mentioned the position, because the *recumbent* posture has been strongly advocated by members of the Society. (Vide *Extracts*, p. 317.)

Dr. C. E. WARE, last February, drew from a patient from fifteen to twenty quarts; afterwards three to four quarts, from time to time, merely to relieve the distension of the abdomen.

Dr. CABOT referred to a case previously reported, in which five gallons, and once nearly six gallons, were drawn off. Dr. C. prefers the recumbent posture as being more comfortable to the patient.

[The sitting position only is directed by Mr. Druitt; but Mr. Fergusson, after describing the operation done in that posture, says: "Instead of having the patient seated, it answers very well to keep him in bed, with the abdomen

[1] Since the case was reported to the Society, the patient has been tapped three times. Dr. Hayward, Sen., drew off forty-four pints on the 3d of October; Dr. Geo. Hayward, Jr., forty-three pints on the 19th of October; and forty-five pints were taken away on the 4th of November by Dr. Hayward, Sen.

projecting over the margin. There are thus less fatigue and less chance of fainting, and I have often operated in this way without using a binder at all." (*Practical Surgery*, Eng. edit. pp. 573–4.)

MM. Malgaigne and Sédillot prefer the recumbent posture.—SECRETARY.]

September 12. *Acute Pneumonia.*—Dr. J. B. S. JACKSON reported a hospital case of the above disease. The patient was a female, 19 years of age, a tailoress; healthy previous to the pneumonic attack, with the exception of slight amenorrhœa. She entered the Massachusetts General Hospital on the 31st of August last. Four days previous to that date, she was out in a storm and her feet became very wet. She took cold, and awoke next morning with severe general pains, which have continued since, with slight cough. she is very weak, fainting on any attempt to rise; pulse 84; tongue coated in the centre, clean on tip and edges.

1*st.* Complains of pain in the left back and chest; there is rude, but deficient, respiratory sound over the left back. A sinapism was applied to the seat of pain: ℞. Pulveris ipecacuanhæ, pulveris opii, āā gr. ½; quartâ quaque horâ.

2*d.* The last night restless; expectoration of about ℥ss of very adhesive, rusty sputa; respiration 44 *per minute*, laboured; pulse 120; complains of pain in left chest on coughing. Dulness on percussion over left back; respiration scarcely heard in lower left lung; strongly bronchial in middle of left back. Examination of the chest impossible, yesterday, on account of patient's inability to sit up. Add to each dose of previously ordered medicine hydrargyri chloridi mitis, gr. ½.

3*d.* Much dyspnœa and distress; profuse perspiration; pulse 140; sputa less adhesive, more sanguineous; extensive crepitous râle over the left back, not observed last evening. Omit present medicine. ℞. Pulveris ipecac. et opii, gr. v; quartâ quaque horâ.

4*th.* Much confused during the night; now, countenance very sallow; expression distressed; pulse 120; tongue covered with a whitish coat; cough diminished; one free bilious dejection.

5*th.* Night more comfortably passed; now (A. M.), respiration less laboured; expression of countenance better; pulse 110; four liquid bilious dejections.

6*th.* Still much dyspnœa; skin much more yellow. ℞. Pilul. hydrarg. gr. v; and repeat, horâ somni, if no dejection previously.

7*th.* More comfortable; pulse 72; expectoration about ℥vj, rather viscid, mucous, and almost colourless.

The patient continued to improve till October 14, when she was discharged well.

Dr. Jackson remarked that he had noticed yellowness of the skin accompanying pneumonia of the right side, but never, before, that of the left.

Imperforate Anus.—Dr. TOWNSEND, Sen., saw at the Massachusetts General Hospital a child, born on Sunday (a week ago yesterday), with imperforate anus. No operation was permitted on it at that time. It was seen again on the Thursday following. A little meconium had then passed through a small pin-hole aperture. A probe was passed in, and the opening freely dilated, the rectum being found free. The child did well.

Death from Hemorrhage from Division of the Frænum Linguæ.—Dr. TOWNSEND, Sen., was called to see a child, in consultation, upon whom the

operation for dividing the frænum linguæ had been done. The resulting hemorrhage could not be controlled. All sorts of styptics were tried; the ligature and the actual cautery were unavailing. The child died after lingering some days. It was very healthy at birth.

Dr. STORER asked how frequently this operation is really necessary. He had done it but three times, and then *at the urgent request of the parents* only.

Dr. TOWNSEND considered it very rarely required.

Dr. PARKMAN had done it once, and the necessity was apparent.

Dr. COALE had operated in four cases; in one case, the tongue could not be protruded beyond the gums.

Dr. CABOT had operated once. The child was quite advanced for such an operation. Articulation was impeded by the tongue-tied condition, and the operation remedied the trouble.

[Mr. Fergusson (*Practical Surgery*) fixes the *extent* for necessary division in tongue-tie, at one-eighth of an inch, and says, "there is no necessity for approaching the tongue, so as in any way to endanger either the ranine veins or arteries."—SECRETARY.]

Pulmonary Disease (Gangrene) complicated with Dysentery. Reported by Dr. STORER.—The patient, a German, 48 years of age, entered the Massachusetts General Hospital, July 25. He had been perfectly well until five weeks previously; was then obliged to give up work by a sudden attack of prostration of strength, and cough. Cough had increased, accompanied by very fetid purulent expectoration; no appetite; great thirst; foul breath.

26*th.* On examination of back, dulness on percussion over left scapula, with very deficient respiration.

27*th.* Fluid expectorated since yesterday, in all, about ℥iss of muco-purulent matter.

August 3. Cough still harassing; matter raised during last twenty-four hours, about ℥viij of purulent mucus, less offensive than heretofore.

4*th.* Expectoration tinged with blood. On examination of chest, flatness and absence of respiration over entire left scapula; expiratory sound quite marked over right back between spine of scapula and spinal column.

6*th.* Matter expectorated less in quantity, having some alkaline odour, nummulated.

7*th.* Expectoration has lost the distinct character of yesterday.

10*th.* Cough much diminished. Six bilious dejections.

15*th.* Cough aggravated. Matter expectorated during previous night, at least ℥viij, purulent, exceedingly offensive.

28*th.* Cough diminishing.

29*th.* Expectoration less than at any previous visit; not two ounces; very adhesive; somewhat sanguineous. Diarrhœa, which has existed for several days, now urgent. Pain in abdomen upon pressure being made.

September 1. Very languid. Countenance haggard. Expectoration less than an ounce.

2*d.* Eight or ten dejections, he says, watery. Since P. M. yesterday, four or five dejections, with tenesmus, bilious, with some half-formed scybalæ, a small quantity of mucus, and a few traces of blood.

After this period until his death, which occurred on the 9th, no record was made of his *thoracic disease.* His cough had almost entirely ceased. On examining, but a single sputum was observed in his vessel, being all he had

raised during the twenty-four previous hours. The dysentery in his exhausted condition demanding our whole care, and defying all our efforts to relieve.

At his *post-mortem* examination, the left lung was found adhering firmly to the walls of the chest, and in the front part of the upper lobe was found a cavity containing a large quantity of exceedingly offensive pus. No slough was found. There were throughout this lobe much softened tubercular matter and pus, but no other abscess. The rest of the lung was healthy, as was also the right, except a few tubercular masses at the apex.

September 26. *Unusual Physical Signs in Phthisis.*—Dr. JACKSON showed the lungs from a hospital patient; the right weighed over four pounds, contained several abscesses of the size of an English walnut, and was perfectly consolidated by tubercular deposits and a pneumonic condition of the intervening structure; the lower half being as much, but not more, affected than the upper. Universal pleural adhesions existed over this side, close and generally rather strong. The patient was a man, 26 years of age, and for three months he had had essentially the symptoms of phthisis; reported at the end of five weeks that he could walk two or three miles without fatigue, and did not keep his bed wholly until the last two weeks, when he failed rapidly, and expectorated large quantities of puriform matter; the expectoration previously having been very moderate in amount.

When first seen, in the fifth week of his disease, July 26, the signs were those of pneumonia of the right lower lobe, posteriorly; crepitous râle; bronchial respiration and bronchophony in the root of the lung; dulness on percussion; otherwise well over this side, except that the respiration was rather diminished. From this time, the signs of disease were developed, and extended most remarkably. On the 28th, there was dulness below the clavicle. August 1. All the signs over the lower lobe were much increased; and, in addition, there was a most marked ægophony. This last was undoubtedly owing to the pleurisy that must have existed, and some of the other signs may have been modified by it; yet it did not exist at first; and it may be remarked, in regard to the symptoms, that there was never, throughout the whole course of the disease, any pain in the right side even on full inspiration. On the 19th, the râle had extended over the whole side, and about the angle of the scapula it amounted to gurgling, with an intensely bronchial or cavernous respiration in this last part; the dulness on percussion, meanwhile, had much increased. On the 29th, the respiration was somewhat bronchial below the clavicle, and on the 1st of September strongly so. 16th. Perfectly flat over whole of right front, with gurgling below the clavicle; and thus the physical signs continued, having commenced in the lower back part, and gradually extended over the whole of the right side.

In the left lung, there was an abundant tubercular deposit in the upper lobe, and more or less in the base, with a few small abscesses; there were also pretty extensive pleural adhesions. Yet no physical signs were ever discovered, though a full examination was often made, as it was presumed that some disease must exist upon this side when there was so much upon the other. The freedom with which this side moved in inspiration, as compared with the right, was quite remarkable.

Another point of interest in this case was the existence of very extensive ulceration of Peyer's glands, the bowels having been perfectly well until the last few days.

Hard Lenticular Cataract.—Dr. WILLIAMS showed the specimen which

he had removed by extraction, yesterday, from a patient 80 years of age. It had been preserved in glycerine, and the amber colour of the nucleus, usually observed in this form of cataract, is well shown.

Hydrophobia.—Dr. HAYWARD, Sen., related the case. The disease was manifested in a boy of 7 years, who was bitten, on the 13th of August, at the angle of the eye, and on the lid, and likewise near the mouth, by a dog. The wounds were thoroughly sucked by a physician who was called in, and then very freely cauterized with nitrate of silver. The boy continued well for exactly one month, when hydrophobic symptoms declared themselves, commencing with soreness in the scars of the wounds, noticed first on the 11th of September, and going on in the usual course of such cases to a fatal termination. The pulse, at one time, rose to 120 a minute; the respiration about 40 per minute; trials, resolutely made by the patient to drink, were stopped by convulsive spasm of the glottis, &c. &c. Bread moistened with water could not be eaten.

Dr. H. tried the experiment of taking the boy to a window, rain falling heavily at the time; the pouring of water, *thus*, externally, did not affect the patient; but when poured into a vessel near him, he was convulsed. A current of air likewise affected him, especially if the air were cool. All treatment was unavailing. Leeches to base of skull; assafetida injections, and subsequently nourishing ones, were administered.

[It was remarked that the sound of the pouring rain did not affect the patient because it did not *immediately* relate to him. Water, more visible to him, either when poured or handed for trial of swallowing, would of course be more potent in arousing spasmodic action, being more direct in presentation, and therefore more appreciable. Dr. MARSHALL HALL, in speaking of the treatment of hydrophobia lately, declared his belief in the curative action of *tracheotomy* in the disease, which operation, it is now well known, he so strongly advocates in epilepsy.—SECRETARY.]

Pediculi upon the Head and Eyelashes.—Dr. COALE had discovered these insects in the above localities upon a child 5 years old. A microscopical examination of them was made by Dr. DURKEE, who decided that they were the *pediculi pubis.* A case was referred to by Dr. D. as having occurred in England, and which was duly recorded, and in which instance the patient, a female, was troubled by the parasites issuing, *apparently*, from the various outlets of the body, *e. g.* the mouth, eyes, vagina, &c. They were often felt in the throat. Dr. D. gave the case as reported in Denny's *Monographia Anaplurorum Britanniæ.*

Dr. BIGELOW, Sen., doubted the possibility of such issue from the outlets of the body; the parasite is not one of the inmates of the hollow viscera, and cannot exist, indeed, within them.

Dr. BURNETT remarked that these insects breathe by stigmata; if these be closed by oil, mucus, &c., the creature would necessarily die. This is true of the flea. The pediculus pubis, Dr. B. added, is now known as the *phthirius inguinalis.*

October 10. *Calcareous Deposit upon Placenta—Uterine Hemorrhage.*—Case reported by Dr. STORER.

On the 27th ult., Mrs. M., aged 23, was confined, after a labour of twenty-four hours, with her first child. Immediately upon her delivery hemorrhage

commenced. Upon feeling for the placenta, it was found to be firmly adherent throughout a considerable portion of its extent. With much effort, it was separated; and, upon being examined, was found to be extensively covered with calcareous spicula. The hemorrhage continued to a fearful degree for a considerable length of time, and the patient was in imminent danger for a couple of hours. Great difficulty was experienced in producing regular uterine contractions; the portion to which the placenta had been attached seemed to have lost its contractile power—so that instead of the globular tumour usually observed after delivery, an irregular oblong body existed. External friction and the exhibition of laudanum and brandy, and ergot freely exhibited, finally accomplished the wished-for result.

Gutta Percha Bougie broken off in the Urethra.—Dr. J. Mason Warren said that he mentioned the case for the benefit of his professional brethren.

A young man applied to him suffering under an obstruction in his urine, for which he had been subjected to much treatment without relief. He had contracted a gonorrhœa nine months before, and had a mucous discharge since. The symptoms indicating stricture, he was advised to have the urethra explored. A small wax bougie was first selected from a bundle, but rejected from being a little injured. The next that offered was one of gutta percha, and being of the requisite size, was softened in the hand, and passed up readily to the prostatic portion of the urethra. Meeting here with some obstruction, it was withdrawn, the point a little softened and bent, and it then went easily into the bladder without the use of any force. On taking hold of the instrument to withdraw it after it had remained a minute or two in *situ*, it broke off short at the orifice of the urethra, or rather dropped off as if it had already been detached, from the effects of a change of temperature, as not the least violence was applied to it. Dr. W. requested the patient to stand perfectly still, not having any question at the time but that with a forceps it could be seized, and readily withdrawn. This at once was found impracticable. It seemed to retract, and bury itself in the anterior wall of the urethra, and any attempt at seizing it only resulted in the laceration of the lining membrane. Various instruments were tried, which he had generally employed in withdrawing foreign substances, but from the peculiarly soft nature of the material in the present instance, and its small size, it could not be detected or seized. Efforts were made, by passing the finger into the rectum and by manipulation on the external part of the urethra, to force the instrument forwards, but from the reasons mentioned above, viz. its softness, small size, and its not distending the canal so as to make itself evident there, nothing could be effected in this way. The patient was sent to the hospital, and seen there by Dr. Parkman in consultation, and as it was found practicable to pass a catheter by the side of the bougie, and free the bladder, it was concluded not to cut down for the purpose of removing it, but to leave the case for the present, so long as the symptoms were not urgent, and see what nature would effect. He was ordered a warm bath, and confined to his bed, on a liquid diet. The day following, he was free from pain, and had passed water while in the bath. On the third day, he observed a hard substance, through the walls of the urethra, making its way towards the orifice; this he assisted a little, and extracted a bit of bougie an inch in length, very brittle, and shrivelled up. On the fifth day, a still larger piece was passed, and on the sixth the remainder of the instrument, making in all about seven inches. He suffered very little from the presence of the foreign substance, his principal complaint being the soreness of the urethra near the meatus, caused by the attempts made to

extract it; which, however, had been conducted with the utmost care, and soon discontinued, as they were found to be useless. The patient is now well, and completely relieved from his previous troublesome disease.

Dr. W. said that he had often used the gutta percha bougies for taking impressions of strictures, and, until the present case, had never experienced any accident from them. In order to be employed with safety, they should be made fresh when required for use, as they become extremely brittle on exposure for any length of time to the air.

At the next subsequent meeting of the Society, Dr. GOULD reported the following somewhat similar case:—

A gentleman, at a distance of about ninety miles from the city, broke off about an inch and a half of bougie in his urethra. As the physician of the place had no instruments adapted to the case, the gentleman took the cars for the city, and came to Dr. G. with a request that he would direct him to some surgeon supplied with suitable instruments. On examination, Dr. G. could feel the fragment, partly in the membranous portion of the urethra, and by pressure behind it succeeded in dislodging it, and by pushing it before the finger brought it out of the urethra. It was a very simple and obvious method when once thought of, and in this instance succeeded perfectly.

Large Tumour of the Arm.—Dr. J. MASON WARREN related the case.

The patient, 75 years old, stated that, twenty years before, her husband, while in a state of insanity, threw at her a cannon-ball which hit her on the arm near the axilla. Shortly afterwards, the tumour began to make its appearance, and increased until it arrived at its present enormous size. It appears to be of a fibro-cellular character, and of about twenty pounds' weight, hanging down so that, when the arm is held at a right angle with the body, it rests on the seat on which she sits, dragging down the integuments and other structures in its vicinity. Very large vessels enter it from the axilla, and can be distinguished pulsating in its substance. The tumour is carried by the patient in a large sleeve, and when first seen by Dr. W., it had an ulceration on the surface, caused by being projected from her sleeve on to the grate, while she was in the act of throwing coals on to the fire. She had a second tumour, apparently of a similar description, on her face. Dr. W. showed a very striking daguerreotype of the patient and tumour.

Sudden Death after Delivery—Disease of the Heart, &c.—Dr. C. E. WARE reported a case of sudden death immediately after parturition. The subject was a woman 28 years of age. She was taken in labour at the full time, at about 9 or 10 o'clock in the morning, having enjoyed good health during her pregnancy and during her previous life. She was said by her friends to have been subject to dyspnœa and sudden paroxysms of coughing on any unusual exertion or effort of walking. Her labour went on regularly, without anything untoward except that, when the labour became very active, and the head of the child approached the perineum, she complained of a great deal of distress at the epigastrium and of a suffocative feeling, accompanied by a short cough, and expectoration of a white, frothy, serous-looking fluid. When the head was pressing upon the perineum, a few minutes before the birth, during the last pains, her mind began to wander; she neglected to make any effort, and the child was born spontaneously, so far as she was concerned, and apparently without her consciousness. The after-birth followed immediately, and there was no flowing of consequence. Mania commenced immediately; she at first screamed and talked, and soon tossed about. She would take nothing,

and appeared to recognize no one. The child was born at 7 P. M. She continued unmanageable, and became more and more violent until about half past eight. Her expectoration as copious and of the same character, excepting that it began to have a pinkish tinge. Her pulse was regular, of good strength and caliber. At about half past eight, she suddenly raised herself in bed, gave a shriek, and fell back dead.

At the *post-mortem*, only the chest was allowed to be opened. Great general rigidity. In the right pleural cavity about half a pint of fluid. Right lung very œdematous. Left lung everywhere adherent, with great opacity, and thickening of the cellular tissues about the pericardium. About a gill of fluid in the pericardium, which was not adherent. Heart of about the normal size and texture. The mitral and semilunar valves on the left side greatly thickened and adherent, and the orifices so contracted that neither would more than admit the little finger. The right side of the heart was normal.

Dr. Ware alluded, in connection with this case, to another which he reported to the Society some time since, of sudden death from a similar cause. A young woman, who had never presented any very marked symptoms of cardiac disease, was suddenly seized, after a scene of some excitement, with dyspnœa, cough, copious fluid expectoration slightly tinged, and died in about five hours. The same disease of the mitral and aortal valves was found. Dr. Ware considered the expectoration very characteristic of the disease: he had never seen it in any other disease. It was poured out with such copiousness as to be almost a source of suffocation by itself, as in cases of excessive and rapid hæmoptysis.

October 24. *Disease of the Hip-Joint, with Caries of the Ilium and of the Horizontal Portion of the Pubis.*—Dr. J. B. ALLEY reported the case.

The patient, a man 48 years of age, had at the age of 10 years a disease of the hip, which terminated in shortening of the limb. At 34 years of age, a large abscess formed on the outside of the left thigh. The attending physician recommended opening the abscess, but the patient demurred, and placed himself under the care of an irregular practitioner, who bled him largely, and gave him calomel until he was thoroughly salivated. After this treatment, the swelling disappeared, and he was not troubled again for three years. During the past ten years has had occasional attacks of pain and tenderness in the joint. The patient came under Dr. A.'s care about one year ago. At that time, he was suffering from the presence of a large tumour, which appeared on the inside of the left thigh. Before this suppurated, another and much larger tumour appeared on the outside of the thigh, extending from the hip two-thirds of the distance to the knee. In the course of a short time, this abscess opened of itself, and discharged a large quantity of matter. This was soon followed by a discharge from the one on the inside, and also a small opening immediately over the sacrum. The patient's strength began to fail, symptoms of hectic appeared, but were successfully combated by tonics and a generous diet, and for nine months the patient rallied, and at times recovered sufficient strength to walk out and attend to his business, which was that of a broker. This state of things did not long continue. The patient became more emaciated, and less able to bear fatigue; and about three months previous to his death, an abscess formed in the perineum, and discharged freely. From that period until his death, he suffered much at times, but was able to move about the house and occasionally to walk out. Still, it was evident that the disease was gaining ground; his sleep was now disturbed, his appetite failed, and he

gradually sunk away until his death, which took place quite suddenly at the last, he having appeared, the night before his death, as well as he had for some weeks previous.

Post-mortem examination twenty-four hours after death.—Body much emaciated; left leg about three inches shorter than the right; and three fistulous openings leading towards the hip-joint.

The pleuræ were found partially adherent, and there were tuberculous cavities in the lungs, but not of any great extent.

All the other organs were normal except the spleen, which was much enlarged. On opening the hip-joint, the head of the femur was found to have been entirely absorbed, and there was a perforation of the acetabulum, through to the inner surface of the ilium, so that the finger could be passed into the pelvis. There was also caries of the horizontal portion of the pubis.

Dr. MARCH, of New York, in a paper read before the American Medical Association in May, 1853, on *Disease of the Hip-Joint*, considers "hip disease as produced in the head of the bone by upward and inward pressure, from muscular action, against the acetabulum." We think the case corroborates the opinion of Dr. March, as we find the os femoris entirely absorbed, and the acetabulum perforated through to the inner surface of the ilium. The primary symptoms of disease, in the case above mentioned, supervened upon excessive muscular action. The patient, when a boy, was in the habit of leaping and running to so great a degree, that he attributed the whole disease to over-exertion during his youth.

It occurs to us, in reviewing this case, that the most suitable treatment, in the earliest stage of disease of the hip-joint, would be gentle traction, sufficient to draw the head of the bone from the inflamed surface of the acetabulum. This treatment, accompanied by absolute rest of the patient in a horizontal posture, might prevent the shortening of the limb and the extension of the disease.

November 14. *Post-mortem Appearances presented in a Case of alleged Destitution and Starvation, with a Description of an Anomalous Arrangement of a Portion of the Abdominal Viscera.*—DR. STEDMAN read the account to the Society. Examination of the body of John Fleming, made August 26, 1853, at 4 o'clock P. M., by direction of Coroner CHAS. SMITH.

Externally.—Weight of the body, sixty-two pounds; height, five feet two inches; circumference of leg at thickest part, six inches; circumference of thigh, four inches; from Poupart's ligament, seven and a half inches; circumference of arm at the thickest part, four and three-quarter inches.

Both legs drawn up by contraction of tendons and fascia.

Body very much emaciated; bones everywhere prominent; abdomen and intercostal spaces green from incipient putrefaction; skin peculiarly dry and soft; face shrunken; mouth and eyelids wide open; eyes sunken; broad superficial ulceration over sacrum; skin of heels soft and loose; well-defined spots, resembling purpura in size and colour, about the ankles; beard and hair on pubes as in adult age.

Internally.—Mucous membrane of mouth colourless, except a deep blue line next the teeth. Omentum destitute of fat, and adherent to a sac, hereafter described. Intestines transparent, so much so that the colour and motion of fluids therein are clearly perceptible; they are also of a pale-bluish colour. Small intestines glued together throughout their whole extent, and contained within a sac which is formed by a continuation of the mesocolon over the whole of the small intestines, and attached to the spine on both sides, about

the last lumbar vertebra. This sac is granular on each surface, exhibiting traces of chronic inflammation. The peritoneum of other portions of the abdomen natural; glands of mesentery and mesocolon enlarged. Peyer's patches ulcerated generally; gall-bladder nearly empty; duodenum unusually distended and pale; stomach distended with air, and containing about three ounces of liquid food—its walls very thin and transparent. Pancreas atrophied; urinary bladder moderately distended with urine.

Pleuræ of both lungs firmly adherent to the ribs. Left lung filled with tuberculous matter, and impermeable to the air. Right lung crepitant, but containing considerable tuberculous deposit.

Heart flabby, pale, fatless, contains no coagula, otherwise healthy.

Serum effused under dura mater in small quantity; substance of brain very soft and without odour; white portion of a pinkish colour; cineritious portion paler than usual.

Muscles small generally, muscular fibre unusually pale and soft.

No fat discernible, in the smallest quantity, in any portion of the body.

Blood deficient in quantity, and of a lighter colour, and thinner than usual.

All the other organs of the body examined and found healthy.

Opinion.—The testimony elicited at the coroner's inquest, together with the appearances presented at the *post-mortem* examination, lead us to the opinion, that the diseased condition of the pleuræ, lungs, and peritoneum were sufficient to destroy life; but that the sufferings of the deceased were aggravated, and his death was hastened by the deprivation of food and proper care.

C. H. STEDMAN, M. D.
F. S. AINSWORTH, M. D. } *Examining Surgeons.*

The following account of the anomalous distribution of some of the abdominal viscera, in the case of John Fleming, is in addition to the above notes taken at the autopsy; the attention of the examiners having been at that time necessarily directed to the interesting medico-legal points of the case, and the account made of them having been intended for the use of the coroner. These peculiarities, it is believed, are without precedent, and are deserving a more extended description than was given in the foregoing report.

On laying open the abdomen, we were struck with the apparent absence of the small intestines. The viscera which were to be seen, were distributed as follows: above, on the right side, the liver, of natural size and colour; in front, extending to the left hypochondriac region, the stomach, somewhat distended with flatus; and immediately below it the transverse colon in its normal condition; the omentum was very much attenuated, extending only about three inches from the arch of the colon. On the right side, from the iliac fossa, the head of the colon, and the ascending portion of that viscus, and on the left the descending, with the sigmoid flexure, occupied their normal position. The hypogastrium was filled by the bladder, moderately distended with urine, and the rectum. On laying the omentum back over the stomach, we found the entire space usually occupied by the small intestines, extending from the ascending across to the descending colon, and from the transverse portion of that intestine to the brim of the pelvis, entirely occupied by an evenly-rounded elastic tumour, projecting out nearly to the level of the large intestine, which bounded it. The surface of the tumour was rough and granulated. Along its upper border it was identified with the transverse mesocolon; and with it could be traced over that portion of the large intes-

tine. On either side, it could be traced to the ascending and descending colon; and was clearly continuous with the peritoneal covering of that part of the intestine. Its lower border was loosely attached to the spine, at the last lumbar vertebra, from whence it was reflected to form the meso-rectum. On cutting transversely across this tumour, the whole body of small intestines was brought into view, compressed into a small compass, and looking not unlike the superior surface of the cerebrum with its convolutions. They were loosely adherent to each other by the effusion of lymph on their peritoneal surface. Their caliber was considerably diminished, though there was no appearance of stricture in any part. On passing the hand through the opening made in the sac, and sliding it upward, it passed, without encountering any obstruction, under the transverse colon, into the cavity bounded above by the stomach, below by the transverse colon, in front by the first and second layers of peritoneum passing from the stomach to the arch of the colon to form the omentum, and behind by the spine and large bloodvessels. The mesentery was adherent to the spine rather higher up than usual. Its glands were considerably enlarged. The ileo-cœcal valve was on the posterior surface of the colon, and the small intestine passed into it without penetrating the sac. On removing the small intestines, the inner walls of the cavity were found rough, and coated with false membrane. They were continuous with the peritoneal covering of the colon in the same way as on the external surface. The cavity was bounded upon both sides by the ascending and descending colon, below, by the attachment of the sac to the spine; while above, it extended upward under the colon as far as the stomach.

From this examination, it is evident that the anomaly in this case consists in the attachment of the transverse mesocolon; which, instead of passing directly backward to the spine between the stomach and small intestines, is continued over them, and attached to the vertebræ below the mesentery—holding and compressing them, very much as the scrotum is held by a suspensory bandage. On each side, the peritoneum, as is frequently the case, did not envelop, entirely, the large intestine, forming on the under side a mesocolon for that part of it, but was reflected from the walls of the abdomen over only the anterior three-fourths, leaving the posterior portion uncovered by peritoneum. After covering part of the intestines, the peritoneum was continued inward toward the median line, forming the lateral portions of the sac.

C. H. S.
F. S. A.

Separation of the entire Long Flexor of the Thumb, by a Twisting Rope.—Dr. Henry O. Stone showed the specimen, which was sent to the Society, for their Cabinet, by Dr. Henry A. Martin, of Roxbury, who also sent the following letter descriptive of the accident, and which was read by Dr. S. to the Society:—

"On the twenty-first of September, the left thumb of a boy, named Lowry, was caught between the rapidly twisting strands of a rope, in process of manufacture; in consequence of which, the last phalanx and a portion of the soft parts about it were instantly torn away, together with the entire tendon of the long flexor of the thumb, even including the tendinous portion of that small slip of the muscle taking its origin from the anterior aspect of the head and upper portion of the ulna, and which is so delicate and insignificant as not to be generally noticed by anatomical writers. (It is figured in the "*Petit Atlas d'Anatomie*" of Masse.)

"When I saw the boy, a few minutes after the accident, he complained of

much pain at the extremity of what remained of his thumb, and of a slight aching sensation in the forearm, somewhat increased by pressure along the track of the abstracted tendon. The wound was just such an one as would have followed a well-performed amputation, and was dressed accordingly; the following day, sensitiveness on pressure along the forearm continued, and was, perhaps, very slightly increased; a dose of salts, with half a grain of tartarized antimony, was administered the next morning; pain on pressure was very trifling, and confined to a small space just above and under the annular ligament; from this time till the 8th of the present month, when I last saw the patient, there was not the slightest pain complained of by him, nor any sensitiveness to pressure along the forearm; I was this morning informed by the boy's employer that he returned to his work on the 10th instant.

"I have thought the above case not unworthy of record, for the accident was certainly a very curious one, and, moreover, there seemed to me, in the absence of all bad symptoms following the injury, a striking proof of the facility with which the reparative processes are carried on in wounds, entirely excluded from the air. We have, consequently, a strong argument, if any be needed, for the safety of even extensive subcutaneous incisions, for in this instance, from the nature of the accident, air could not by any possibility enter the wound, as, under the influence of external atmospheric pressure, the surrounding soft parts would instantly obliterate the space previously occupied by the lost tendon, and, as a consequence of this entire exclusion of the air, an extensive *lacerated* wound was repaired without even the shadow of a bad symptom."

Bony Deposit on Dura Mater—Microscopic Test, &c.—Dr. DURKEE showed two specimens of bone taken from the inner surface of the dura mater. They were mere irregular spiculæ before being prepared for microscopic examination. These two specimens were compared with several other portions of normal bone taken from the femur, humerus, &c. No difference could be discovered between the several preparations. They were examined with Nachet's and Spencer's microscopes by the members present. The system of Haversian canals, the lacunæ, the canaliculi, the laminæ, &c., were in all exactly alike.

Dr. Durkee remarked that he had worked out a great many specimens of bone, from the young fœtus, weighing only sixty grains, to the adult subject; and that the lacunæ and canaliculi varied considerably in appearance; that is, the lacunæ would sometimes have the canaliculi only on one side, and in some specimens they appeared less numerous than in others; but he had never examined any that appeared in all anatomical features more perfect than those found attached to the dura mater which he had just exhibited. Both specimens from the dura mater were treated with very weak muriatic acid, to remove a portion of their earthy constituents, and thereby display the canaliculi and lacunæ more boldly, as is always the fact in true bony structure. The spiculæ responded to the action of the acid very promptly; and here we have a chemical proof that they are real bone. Dr. D. remarked that it is impossible to say whether cartilage cells existed before the formation of bone or not, inasmuch as we have no means of reducing bone to its original cartilaginous state in any case.

Dr. BACON also exhibited transverse and longitudinal sections of an ossific deposit from the dura mater, examined by him a year since. These show the concentric laminæ, lacunæ, and canaliculi of true bone. The Haversian canals generally run in the direction of the length of the bony plate, and are con-

nected by transverse branches, in the usual manner. The osseous tissue is continued into the projecting spicula, and no cartilage of ossification is visible. On removing the mineral matter by dilute hydrochloric acid, the animal matter is left retaining the form of the plate, as in normal bone.

Dr. BURNETT remarked, that the specimen of ossific deposit upon the dura mater, exhibited at the last meeting by Dr. Jackson, and microscopic preparations of which were on the table this evening, had more than usual interest from its important bearing on a point in histology.

It has been a question since the days of the earlier microscopical investigators, and especially since the time of MIESCHER, whether or not bone was always formed in a preëxisting cartilaginous matrix. Many excellent observers have maintained, that it is always preceded by cartilage, and that in the case of the formation of the cranial bones, which are particularly those alleged to be formed in membranes and not in cartilage, there is really a delicate but very transient cartilaginous layer preceding the appearance of the true bone.

Dr. B. said that this is the view advocated by Miescher especially; and that from his own researches upon the formation and development of bone in fœtal goats, he has been obliged to adopt the opinion that bone is always formed *out of* cartilage, and that the Purkinjean corpuscles of bone are only the transformed cartilage cells

On the other hand, KÖLLIKER, SHARPEY, and others, from recent investigations, advocate the possible *intra-membranous* formation of bone, and especially those forming the vault of the cranium.

The present specimen has the importance of furnishing valuable data towards a decision of this point, for here it is highly improbable that, in this epigenesis, cartilage, which is a true embryological formation, should have preceded the development of the bony matter, and, what is more, this bony matter has all the true constituents of bone precisely as though formed in the fœtus. Dr. B. said, moreover, that his former opinions, already invalidated by the results of so excellent an observer as Kölliker, are considerably shaken by this specimen, and by the interpretation we are obliged to put upon it. Dr. B. added, that this is a striking instance of the manner in which pathology may sometimes ably serve physiology.

Entozoa.—Dr. BURNETT exhibited specimens of Entozoa, with the following remarks. These worms are far from being rare or uncommon, and were taken from the omentum of a sheep. They are the well-known *Cysticerci* of that animal, and the like of which occur also in many of our other domestic animals. I present them in both conditions—of being invested with a sac, as they are always found, and with the sac removed, showing the animal itself. These parasites are objects of considerable physiological interest, from the recent researches which have been made upon their economy and real character. These investigations have cleared up not only this subject, but also allied ones, and have removed some of the strongest data in favour of the equivocal generation of these animals. SIEBOLD, the greatest of living helminthologists, has ascertained from long-continued and careful experiments, that these anomalous forms of Entozoa, as also others which have likewise been regularly classified and arranged, are only forms of Tæniæ, existing under that singular state of conditions, known as constituting an *alternation of generation;* that is, where an animal, A, produces by means of eggs, individuals, B, which are apparently dissimilar to their parent. These individuals, B, are sexless, and reproduce offspring resembling A, without any sexual process. These intermediate forms, B, are called the *nurses,* and are represented

in the specimens now shown, only that here, as with nearly all the *Cysticerci*, they have so degenerated, as to be wholly unable to reproduce the true tæniæ, and are therefore entirely abortive animal forms. If there were time, it would be interesting to detail here many curious facts, recently ascertained, as to the various migrations these tæniæ perform, in order to reach their final resting-place—such as from insect to bird, and from bird to mammal, living in each under different forms, and becoming perhaps the true tæniæ in the mammal—their last habitat.

I will only add that such researches tend very much to lessen the number of true zoological entozoa, and the present specimens belong to an order (Cystici) which has thereby been wholly removed from zoology.

Nov. 14. *Placenta Prævia.* Dr. Buckminster Brown read the two following cases:—

Case I.—Mrs. K., twenty-seven years of age, six months advanced in her second pregnancy. Her previous confinement had not been marked by excessive hemorrhage; the child, however, only survived one day. Two weeks previous to my seeing her, she had, for the first time, a slight discharge of blood from the vagina; which had ceased and returned again three times during that period. The evening before, the flow had been so severe as to greatly alarm her attendants. It continued, however, but a short time.

On examination, I found some oozing from the vagina, which was full of coagula, and the bedding much wet from the last night's flooding. The os uteri was soft, but not dilated. In this state of things, nature having already checked the hemorrhage, I did not deem active interference advisable, nor feel justified in disturbing this favourable condition, even so far as to ascertain the presentation.

In cases of uterine hemorrhage, whether unavoidable or accidental, it is well known, that if the bleeding is efficiently checked, the woman may carry her child two or three weeks, or even to the end of her term, without any alarming return of the flooding. In cases of the first-mentioned description, however, the commencement of labour is generally marked by a copious gush of blood. A curious and interesting instance of the advantage to be derived by following the expectant method in these cases, is related by Velpeau. It occurred in the person of a young woman at the Maternité, at Tours, who was seized with flooding three times; with an interval of a fortnight between each attack, in the two latter months of gestation. She was delivered at the natural period. There were found "on the surface of the placenta three distinct layers, about the size of a three-livres piece; one of these layers, which was very near the edge of the placenta, was composed of a clot that was still red, of a lenticular shape, and with difficulty separable from the after-birth; the second was composed of a fibrinous concretion, much firmer, and scarcely coloured at all; the third looked more like a sort of cicatrix." These three spots M. Velpeau considers undoubtedly to have been the seat of the three hemorrhages which took place previous to labour. The same author likewise mentions another case of accidental hemorrhage, in the third month of pregnancy, which was so profuse that in the space of thirty-six hours more than two quarts of blood were lost, notwithstanding which the woman did not miscarry. M. Duparcque relates a case of *placenta prævia*, in which flowing came on as early as the sixth month, but ceased spontaneously, and did not return until the commencement of labour. Hemorrhage under these circumstances occurs much more rarely in the first months of gestation, than where

it takes place in consequence of the simple accidental separation of a portion of the surface of the placenta from the walls of the uterus.

During my first two visits, the treatment consisted in simply enforcing the necessity of perfect quiet; that the patient should be kept cool; cold drinks taken, and aromatic sulphuric acid administered; at stated intervals, pills composed of acetate of lead and opium.

At half-past one, at night, I was called in great haste. The flooding was profuse, the bedding soaked, and the blood dripping through it, and standing in pools on the floor. The pulse fluttering; there was tendency to syncope, with vomiting, gaping, &c. The os uteri still undilated, and the placenta found to be attached directly over it.

Urged by the considerations above referred to, and by the state of the os, active temporizing measures, in the first place, were determined upon, with the intention of affording the woman the chance of saving her child, before proceeding to the *dernier ressort*, and attempting a forced delivery. Cloths, wet with cold water, were flapped upon the abdomen, ice was applied to the vulva, and a sinapism to the back. This last application is considered by M. Velpeau as one of the most powerful and useful revulsives, in such cases, with which he is acquainted, and more to be relied upon than any other remedy. MM. Trastour, Larouche, Nivert, and others, have made use of it with much advantage.

These measures, pursued with vigour, soon produced their effect. The hemorrhage rapidly lessened, and in a short time almost entirely ceased. A slight discharge, however, still continuing, it was decided, in order to insure as great an amount of safety as possible, to make use of the *tampon*. A fine linen cloth was introduced in the form of a sac, oiled on one side; this was filled with tow and wadding. Over the whole, a linen compress was placed, and all made firm by a crucial bandage.

The bleeding was completely checked; there was great improvement in the pulse, and all the threatenings of syncope passed away. After waiting a sufficient length of time, finding there was no return of the hemorrhage, directions for perfect quiet were strictly enforced, and the patient was left for a brief period.

At 10½ A. M., I was again summoned, and found that the tampon had become in some degree displaced, and that the hemorrhage had returned to a frightful extent. The remedies previously employed were again put in operation, while the necessary measures preliminary to *turning* were taken; and, by my request, Dr. W. E. Coale was called in consultation. Dr. C. arrived immediately, and having fully concurred as to the necessity for turning the child, with his assistance the operation was performed, and the woman delivered of a still male child.

Stimulants were administered, and the patient slowly recovered. The only adverse circumstance which occurred was an excessive irritability of the stomach, which was subdued by morphia.

The placental presentation, with the consequent unavoidable hemorrhage; the recovery of the patient, notwithstanding the immense quantity of blood lost; combined with the danger arising from the operation of turning, a step involving great hazard in her exhausted state, are among the chief points to be noted in this case.

Case II.—Mrs. O., thirty years of age; third pregnancy. Her previous confinements had been very severe, attended with much hemorrhage. Only one child was born alive, which lived twelve months. She was first seen

by me, Nov. 9, on account of severe hemorrhage from the vagina. She was in the seventh month. Had had some flowing from vagina for about a month. During the last ten days it had occurred from time to time in gushes, very considerable; and previous to my visit, the bleeding had been alarming. Her countenance presented a remarkably fixed, unnatural appearance, which, taken in connection with excessive nervous excitement, induced the fear of cerebral trouble and the anticipation of convulsions. At this time the flowing was slight; the child was living, as ascertained by auscultation; the fœtal movements could likewise be distinctly felt. The uterus was at intervals in a state of spasmodic contraction, which at times was so violent as to force the head of the fœtus against the abdominal parietes, where it could be felt forming a projecting tumour.

Pills of acetate of lead and opium were prescribed; perfect rest in the horizontal position, together with cold applications to the abdomen and vulva were directed; also, my instant summons should there be the slightest hemorrhage.

At 6 P. M. was again requested to visit the patient, and informed that there had been one profuse gush of blood. This had subsided, and labour appeared to have commenced. There was no placental souffle; the only sound heard was, from time to time, that of muscular contraction. The os uteri was slightly dilated, sufficiently so to ascertain the presentation, which proved to be *placental*. The uneven, lobulated tissue of the placenta completely closed the mouth of the uterus, being attached directly over the cervix.

The bleeding, at this time, was not alarming; it was decided to wait for increased dilatation. When this had sufficiently advanced, ergot was administered, and I proceeded to deliver, the, in such cases, falsely called *afterbirth*. It was important that this preliminary step should be taken as soon as possible, both in order to prevent farther hemorrhage, and also to make way for the advance of the child. This could not be accomplished until the membrane had been ruptured, and the waters partially discharged. The membranes were unusually tough and thick; it was impossible to penetrate them with the finger-nail, which, in such cases, has usually answered the purpose, and a sharp-pointed probe was introduced before their rupture could be effected.

The delivery of the placenta was a slow and somewhat difficult process, on account of the forcible contractions of the uterus, by which it was tightly impacted between the body of the child and the uterine parietes. Thus far the plan suggested by Prof. Simpson, of Edinburgh, had been pursued. Having dislodged the placenta, it was discovered that the difficulties of the case had but just commenced, and that behind it there were presenting an arm and side of the chest. The child was, in fact, lying directly across the pelvis. The right arm presented. Turning was the only alternative, and was immediately determined upon. The pains were now very violent. As soon as possible, the hand was introduced into the uterus, following the chest and abdomen of the child, until the feet were reached; a new obstacle now presented itself, growing out of the thickness of the membranes before referred to. The opening previously made had been closed by the downward pressure of the child, which prevented the escape of the liquor amnii, and a bag partially filled with water was interposed, effectually preventing the feet being seized. It was not until chloroform had been administered, and, through its agency, relaxation of the uterus effected, thus allowing the waters to drain off, that this difficulty was overcome, and the operation successfully accomplished.

The child was stillborn, and was remarkably large for the term of gestation. The membranes, upon examination, were found to be unnaturally firm and thick.

The uterus contracted well. The patient's strength, now much exhausted, was recruited by the necessary restoratives, and at 5 A. M. she was left comfortable.

During the day, there was considerable tenderness over the uterus. Pulse 120.

Nov. 11. The tenderness had increased, and there was much enlargement of the uterine globe, which was in a state of irregular, lobulated contraction. Pulse 106. Ol. ricini was directed; to be followed, during the day, by powders composed of calomel, ipecac., and opium; and fomentations to the abdomen were ordered.

12*th.* Some increase of tenderness on pressure. Directed one powder every four hours.

On the 14*th*, the patient was fully under the mercurial influence, and there was a decided improvement in the symptoms.

On the 16*th*, pressure made with considerable force over the uterus, gave no pain.

Convalescence progressed without any accident.

Five important points may be noticed in this case.

In the first place, the placental presentation, and the unavoidable hemorrhage which preceded the delivery.

Dr. Robert Collins, in his statistical account of 16,654 births which occurred in the Dublin Lying-in Hospital, during the period when he had the medical charge of that institution, states that of this number there were but *eleven* placental presentations. Of these eleven cases, eight of the children presented naturally. Two were footling cases, and one was a breech presentation. Four were turned, and in one the head was lessened. Two of the four women, whose children were turned, died; the others recovered.

2. The presentation was complicated with procidence of the arm. In the 16,654 births just referred to, there was not one in which this complication occurred.

3. The great tenacity of the membranes may be noticed.

4. The early delivery of the placenta; which, in this instance, was a successful application of the principle, and was attended with a favourable result.

5. The relaxation of the uterus and of the voluntary muscles attendant on the state of anæsthesia, by which the operation of turning was rendered simpler to the operator, as well as painless to the patient.

ART. V.—*Sarcina Ventriculi in connection with Disease, &c.* By SILAS DURKEE, M. D. (With a wood-cut.) Read before the Boston Society for Medical Improvement.

September 28, 1853. Mrs. M. called on me for advice. Patient is thirty-eight years old; stout, robust frame, and rather fleshy; was married to her second husband (with whom she now lives) six years ago. Reports that her

first husband died twelve years since. For a long time previous to his death, he suffered from constitutional syphilis, and is known to have gone down to the grave with that disease upon him.

For about a year before she was married to her present husband, patient noticed "a trifling soreness inside the nose," as she expressed herself; but from this she experienced no particular inconvenience until about three years since. At that time she began to be troubled more seriously with "the soreness," and subsequently with ulceration of the lining membrane of the nose. The patient makes various statements and admissions in regard to her health during the last six or eight years; and I find it useless to attempt to get the facts in the case from her. I have the authority of her former physician to say that she had the venereal disease, communicated to her, in all probability, by her former husband. She now has lupus exedens of the nose; and I regard the case as syphilitic. Some two years ago, the vomer and other nasal bones became affected, and numerous spiculæ have from time to time been cast off. The disease, thus located, has undergone various alternations, being sometimes stationary, sometimes on the increase, and at other times so far on the decline as to give very little trouble.

In April last, the alæ nasi became hypertrophied and inflamed; and several small, hard tubercles soon developed themselves on the cuticular surface, the right ala and its immediate tegumentary connections being more seriously implicated than the corresponding parts on the other side. No exfoliations of bone for several months past. Without prosecuting the history of the case any farther in detail here, it is sufficient to say that the malady is very distinctly and unequivocally "pronounced."

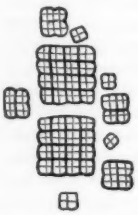
Upon attempting to ascertain, by near inspection and the probe, the condition of the diseased parts, the fetid emanation therefrom was so intolerable that I was obliged to desist, and to make my retreat. Patient was directed to use an injection of chloride of soda one part to water six parts; injection to be repeated four or five times daily. Mrs. M. used this remedy faithfully, and called upon me again on the morning of

October 8. Dr. B. S. Shaw, who has rendered me valuable assistance in microscopic researches on various occasions, was in my office at this time. We had no trouble in examining the case to-day, the putrescent odour having been nearly destroyed by the soda injection. So far as the eye could detect, the morbid surface was clean and dry. A smooth glass rod was passed one inch and a half up the right nostril, for the purpose of ascertaining the condition of the parts and of procuring any matters that might be lodged upon them. Upon withdrawing the rod, its end was loaded with a thick white caseous substance, not unlike what is often found upon the ulcerated tonsils of a scrofulous subject. This was the appearance to the naked eye. Upon subjecting it to Spencer's microscope, with a power of 500 diameters, we readily perceived something in the field unlike what we had ever seen before in pathological specimens. We found a great abundance of what proved to be masses of sarcina ventriculi, mixed with epithelium, free epithelial nuclei, and mucus. No pus-globules.

The sarcina ventriculi was first discovered by Prof. John Goodsir, in the contents ejected from the human stomach, and was described by him in the *Edinburgh Medical and Surgical Journal*, for April, 1842; and, since this discovery, its existence in the animal organisms has attracted no little attention among medical men and naturalists. Goodsir regarded it as a cryptogamic vegetable parasite of very low organization; and his opinion is in a fair way

to be fully confirmed, although it has not as yet received the concurrence of all who have studied the sarcina.

The repeated examinations which I have made of the substance in question, enable me to bear testimony to the very accurate description given by Goodsir, and a synopsis of which I here subjoin. In every instance, the parasites presented themselves in the form of square or slightly oblong transparent plates, of a pale yellow or brown colour They were made up of cells, the walls of which appeared rigid, and could be perceived passing from one flat surface to another as dissepiments. These dissepiments, as well as the transparent spaces, were, from compression of contiguity, rectilinear, and all the angles right angles; but the bounding cells bulged somewhat irregularly on the edges of the organism, by reason of the freedom from pressure. [See Fig.] These circumstances gave the whole mass the appearance of a "wool-pack," or of a soft bundle bound with a cord, crossing it four times at right angles and at equal distances. From these very striking peculiarities of form, Goodsir proposed for it the generic name SARCINA; that is, a pack, or wool-pack. (*Vide* Simon's *Chemistry of Man.*)



Sarcina Ventriculi, seu Sarcina Goodsirii.

The sarcina has in several instances been found in the human stomach, also in the stomach of the hare and the dog, and frequently in the fecal discharges in diarrhœa. Heller has found it three times in the urine, where it formed a thick white sediment. In two instances it has been detected in abscess of the lungs, and once in carcinoma of the rectum. These are the only localities in which this substance has been known to exist hitherto. Another habitat may now be added, viz. the human nose. And it seems not a little singular that, notwithstanding several pathologists and chemists in this country have been on the lookout for the sarcina in their microscopic investigations, there is no record, so far as I know, of its having been discovered, except in Europe. The case now under consideration may therefore be regarded as the first of the kind in this country.

The sarcina is, in all probability, a vegetable product, and its place, I think, is in the family of cryptogamic plants known as Diatomaceæ among botanists. At the time the specimens in question were removed from the lupoid surface to the glass slide for examination, they were of a delicate green colour; but the whole mass soon parted with its chlorophylle, and became nearly transparent, and highly refractive. The sarcina ventriculi is called by Robin merismopœdia ventriculi.[1] He has devoted several pages to the subject,[2] and considers that the substance is a coriaceous, transparent plant, made up of cubic, elongated, prismatic, or even irregular masses, composed habitually of 8, 16, or 64 cubic cells, each face of which is divided into four parts by slight

[1] Merismos Division.

[2] Robin, Végétaux parasites. Paris, 1853.

furrows. According to his measurement, the masses vary from 0.030 to 0.050 of a millimetre in length, and from 0.016 to 0.020 of a millimetre in breadth, and have a very clear brown colour; cells transparent, contiguous, or slightly separated. He states that each cell has a nucleus, the feeble brown colour of which determines the colour of the whole mass. Drs. Bacon, Burnett, Shaw, and myself spent several hours in examining the sarcina with a power of 600 to 800 diameters of Nachet's microscope, and with a power of more than 1,200 diameters of Spencer's best instruments; and, with all desirable facilities for a faithful study of its most minute structure, we were unable to see the nuclei to which Robin refers. He thinks the sarcina differs from the *Gonium pectorale* or *G. tranquillum* of Ehrenberg, in having the tabular masses smaller, and the cells nearly twice as large, and being nearer each other; and he ranks it among the lowest classes of algæ.

Frerichs has studied the development of sarcinæ in the stomach of a dog, by means of a fistulous opening. The cells, according to him, were at first round, isolated, rarely in groups of two, without nucleus, and measuring 0.005 to 0.007 of a millimetre. Transparent at first, these cells presented, little by little, a median line or furrow, which was soon crossed at right angles by a second. These lines extended entirely across the cell, so as to divide it into four parts. Each one of these parts had a diameter of 0.002 to 0.003 of a millimetre; and each one of these was divided, in its turn, into four new parts, as before. The primitive cell increases in this way by division into rectangular cells of fours.

The successive stages in the development of the simpler algæ are very satisfactorily shown and explained in Carpenter's *Comparative Anatomy*, and correspond with the observations of Frerichs in regard to the sarcina. In Carpenter's Fig. 67, it will be seen that the thallus of the *Ulva furfuracea*, which grows by the process of transverse subdivision, is very much like the figure of the sarcina which I have appended to this communication.

Bennett, in his *Clinical Lectures* (p. 214), has a figure of the sarcina, and describes it as consisting of square particles, which apparently increase by fissiparous division in regular order, so that they present square bundles of four, sixteen, sixty-four, or a multiple of these.

The specimens which I obtained varied in size, and were divided by crucial lines. The cells ranged from 0.007 to 0.002 of a millimetre. In English inches, the measurement may be expressed thus: the largest quadruple cell measured $=\frac{1}{360}$ of an inch. The smallest quadruple cell measured $=\frac{1}{1160}$ of an inch, making the average size $=\frac{1}{840}$ of an inch. The average size of each ultimate cell was $=\frac{1}{1700}$ of an inch (which is about one-sixth the size of a human blood-corpuscle). The cells were easily separated from each other by slight pressure, and, with the most careful manipulation, it was difficult to preserve more than four cells in a group together, and in their natural position. With the mass thus divided, it was easy to bring out their form distinctly. Numerous solitary cells were continually brought to view in the field, but from

these less satisfactory results were obtained. The relative arrangement of the cells, where they were most numerous and in their normal state, appeared to be almost a perfect fac-simile of what is seen in the frond of the *Porphyra vulgaris*. I happen to have a good specimen of the porphyra, which was mounted two years ago for microscopic purposes. This marine plant contains roundish granules in cells as one of its means of fructification. These cells are arranged in a quaternate manner, and cover the whole parenchyma of the frond. They are larger than those of the sarcina; but the shape and relative position, one with another, of the cells in the two substances are identical; and this anatomical affinity affords a strong collateral reason in favour of the vegetable character of the sarcina.

It is well known that the cells in many of the algæ contain a glutinous substance which serves as a feeble cell-wall, and it is by means of this substance that the individual cells are held together so as to form a frond or thallus. Some of the lower orders of the algoid tribes have their mucous cell-wall strengthened by a coating of silicious matter, which frequently presents very distinct and beautiful markings. This is the fact with the diatoms especially; and the sarcina affords a good illustration of this aggregation of cells, and of well-defined crucial markings; and its silicious qualities can scarcely be doubted, when it is considered that neither acetic, nor nitric, nor sulphuric acid has any effect upon it; neither do the alkalies, even when hot, except that they separate the component cells from each other. Ehrenberg has assigned the diatoms a place in the animal kingdom, but they are now considered by most naturalists as belonging to the vegetable world.

Robin has satisfied himself that the sarcina differs from the torula of fermentation, from partly digested starch-globules, and from muscle; also from the gonium, or voloox, or any species of infusoria. Busk[1] considers the sarcinæ a species of gonium. He discovered them in three cases under his care in the Dreadnaught hospital-ship, one being a patient suffering from rupture of the diaphragm. Lehmann[2] considers it identical with the gonium tranquillum of Ehrenberg. Vogel also regards it as a species of gonium. Virchow, in his *Archiv* for 1847, appears to have studied this subject with great care. He makes the following *resumé*:—

"It is not shown that the sarcina is the product of decomposition.

"The sarcina has no determined connection with the action of fermentation, or with any symptom of disease.

"Its cellular nature is not demonstrated. In case it were, it could without fear be assigned to the lower classes of plants."

The author last quoted says that the presence of the sarcina in the stomach does not produce particular symptoms, for it has been found at autopsies in stomachs both healthy and diseased, in anatomical conditions entirely different, even in the stomachs of people who have not vomited. On the other hand,

[1] Microscop. Journ. 1843. [2] Patholog. Chemistry.

several cases of obstinate vomiting have been reported where the sarcinæ have been found in the matters ejected.[1] It is said that these cases generally prove fatal. So that the opinion of Virchow as to the uninjurious effects of the sarcina must be considered as hypothetical.

The mode of propagation of the sarcina is doubtless by cleavage or cell-division, each cell containing the germ of reproduction within itself. Thus the lupoid surface, upon which my specimens were found, may be regarded as a rich flora; and whether the spores that must be constantly floating about in every direction, wherever the patient goes, can find lodgment in other similar localities, remains to be seen. Her husband, or some other member of the family, may at some future day bear witness in the premises.

For some time subsequent to the discovery of the sarcina ventriculi by Goodsir, its presence in the system was supposed to depend exclusively upon some gastric derangement, as, for instance, pyrosis. In cases where this parasite has been found in vomited matters, the symptoms have been quite uniform, viz. flatulent distension of stomach, a burning sensation referred to the epigastrium and upwards in the course of the œsophagus, and frequent vomiting of a fluid containing a great amount of acetic acid. And the supposition just alluded to is not without some show of reason. But as yet we have not sufficient facts to guide us to actual demonstration. On the one hand, it may be said that of all the specimens that have been found in different organs, the contents of the stomach may have been the only producing soil, and the parasites may have been transported along with the fluids. On the other hand, there is equal probability that the sarcinæ are indigenous to the localities where they have been discovered. And it seems to me that before we can reach any satisfactory solution of this subject, we must await the advent of farther scientific light.

October 31. Since writing the foregoing, I have seen the *British and Foreign Medico-Chirurgical Review* for this month. In this number, Dr. Wm. Jenner has a short communication, stating that in July, 1852, he found Sarcinæ Goodsirii in fluid taken from the ventricles of the brain of a boy four years of age, who died of acute tuberculosis. But unfortunately the fluid was not examined microscopically until forty-eight hours after the death of the patient; and the sarcinæ might have been a *post-mortem* product. Dr. Jenner mentions one or two recent cases reported by Heller, in which the sarcinæ were found in urine which was entirely free from any admixture with vomited matters. In one case, the urine was examined for many weeks in succession, and a sediment in it formed of an inch in depth, and was composed entirely of sarcinæ, mixed with a little carbonate of lime. Thus the question as to whether the stomach is or is not the only organ in which the sarcinæ may originate, is put to rest in the negative.

Dr. Jenner's report of the measurement of the parasites found by him

[1] *Vide* Queckett's Lectures on Histology.

agrees very nearly with the statements already mentioned in this communication.

November 1. During the past eight days the discharge from the lupus has been very trifling. To-day I was unable to procure the amount of half a drop. In this small quantity I found two or three quadrangular cells of sarcinæ. Patient has frequently been questioned relative to any gastric trouble, and has uniformly replied that none existed. To-day, however, she was asked if she had ever been troubled with what is called "water-brash," and she replied in the affirmative. I must be allowed to say that as the answer was in return to a leading question, she appeared to speak in accordance with what she supposed to be my wish. Her attending physician states to me that she never had any pyrosis, or symptoms at all indicative of any such condition.

Boston, Nov. 1, 1853.

ART. VI.—*Epidemic Cholera; its Contagion, Pathology, and Cure; with an Account of the Disease as it prevailed in Cumberland, Md., during the past summer.* By C. H. OHR, M. D., of Cumberland, Md.

MUCH diversity of opinion exists, as well in as out of the profession, in regard to the contagion of cholera. My observation of the disease in 1832–33, led me to the adoption of the opinion that it is neither contagious nor infectious; and I adhered to that opinion until the appearance of the disease in this place during the summer of 1853. The definitions of *contagion* and infection are so varied and dissonant, that it is well for each one using these terms, if he would not be misunderstood, to "define his position." In using the term *contagious*, I use it according to its radical meaning: *con*, by or with, and *tango* or *tago*, I touch—by actual touch or contact; as, for example, scabies, lues, &c. By *infection*, I mean the propagation of the like disease, by means of a vitiated or poisoned atmosphere emanating from and surrounding the diseased person, to other persons coming within the range of that atmosphere, without contact of the body or clothing of the diseased subject. Cholera, as is the case with other diseases, has laws by which it is governed; that we do not understand them, is no proof that they do not exist. If ever we arrive at a full and accurate knowledge of these, it will be by the faithfully reported history of its origin and progress at the various localities in which it makes its appearance. By the combination of such reports, and a patient analysis of their details, an approximation to truth is much more probable than by theorizing on isolated cases. My purpose is to give its origin and progress at this place, so far as my observation and inquiries in reliable sources have enabled me to trace it.

The first case which occurred in this place was in the person of a boatman on the Chesapeake and Ohio Canal, named Mayo, who presented himself at

my office early one morning about the middle of July; his countenance was to me a sufficient index of his disease, which was fully established by examination. My inquiries elicited the fact that he was just from Williamsport, in the adjoining county, on the canal, at which place cholera was then raging with considerable violence; he lay out that day and night on the "green," and next morning was a corpse. The next case occurred about the last of July or first of August, in another boatman, and from the same place; he lay in a "green grocery," kept by a man named Hall; he recovered. This establishment was situated on the west side of Wills Creek, at its junction with the Potomac, and on the corner of Green Street. On the 6th of August, a little girl living with Hall died, and on the 7th Hall also died of cholera. On the same day, a boat-builder, named Cooter, was taken with the disease, and died in nine hours; he had been at Hall's a part of the preceding day; he lived on the east side of Wills Creek, on Mechanic Street, about a mile north from Hall's. In the mean time, several other deaths had occurred on Green Street, in the immediate neighbourhood of Hall's. On the 8th, Kennedy and several of his family manifested the disease; they lived about fifty yards from Hall's, and had had intercourse. On the night of the 8th, Hazel Beall, a watchman, was taken with the disease, and lived until the 14th; he had been at Hall's, and lived on North Mechanic Street, near Cooter. On the 12th, Mrs. H. Beall was taken with the disease, and died the same day. Four of their children were taken successively, and some of them were carried into the adjoining house of Mrs. A. Simpkins; two of them died, as did also Mrs. Simpkins and her child. On the 10th or 11th, Mrs. Nelson Beall went to Hazel's, and assisted to nurse; she was taken with the disease, went home, and died on the 13th; her husband and two children were taken with the disease, and died by the 19th. They lived out of town, about a mile and a quarter southeast from Hazel Beall's, on the Bedford road. No other persons in that neighbourhood were taken with the disease, and none of them entered the house from first to last. On the 18th, R. Sullivan was taken with the disease; he had been a day and night at Hazel Beall's; he lived out the eastern pike, near three-fourths of a mile from Hall's, and a greater distance southeast from Beall's; his mother and three children of a brother were successively taken; the mother and two of the children died. No other persons in that neighbourhood were taken with the disease except two mulatto girls, named Cole, both of whom had been assisting to take care of this family; they will be farther noticed in speaking of the treatment. During the interval from the 6th to the 18th, a number of deaths had occurred along Green Street; all passed off for cholera morbus; a less number had occurred on different parts of Mechanic Street, and some other points. The disease had been gradually thickening, the warning voice had been raised and disregarded, the citizens generally disbelieved, and most of the profession denied its existence. But the hideous fact stood at the door, and would no longer be excluded; "Blue Friday" (the 19th) came, and numbered thirteen victims; the panic

became universal, and by the close of the week the town was stripped of half its population; more than three thousand souls had abandoned home and friends; the disease was diffused all over town, and consequently no longer traceable.

Prior to this time, the summer had been more than usually healthy, there had been an occasional case of dysentery and cholera morbus, with a moderate number of cases of cholera infantum. The season had been unusually dry and hot; vegetation had suffered seriously from drought and grasshoppers; the air seemed pure and calm; there was nothing to indicate the coming disaster, unless it was in the imperturbable and unbroken calm of the elements. On the night of the 15th, our town was visited by a very heavy rain; the day of Tuesday seemed like its predecessors, but that night the watchmen's rattles and alarm-bells raised many of our citizens, not to the cry of *fire*, but *water*. It seemed as though a mighty avalanche of water had been suddenly hurled down the gorges and valleys of Wills and Knobley Mountains, rendering egress from many houses impracticable until the waters had subsided. On the morning of the 17th, many of our streets presented the ravages of the flood; in and around the public square could be seen, piled in indescribable confusion, lumber of all sorts, barrels, drygoods-boxes and coffin-boxes, and a plentiful deposit of mud and filth covered the principal streets. On the 18th, the disease was multiplying, and on the 19th reached its acme, but continued till October to a greater or less amount daily. One point more as to its origin. Hall's "green grocery" was a long, low, old frame one-story building, with about one-half that story below the pavement, which approached within three feet of it; it was kept for the retailing of cakes, candies, liquor, bacon, potatoes, cabbages, and rotten codfish, of which last article he had at the time of his death a plentiful supply; a place for the congregation of boatmen, loafers (white and black), and strong odours; apparently as favourable a place for the incubation of pestilence as could be desired. My inferences from the preceding are, that the poison, miasm, or *infection*, was brought from Williamsport by the boatman who lay sick at Hall's; that it was there incubated, was disseminated through the girl, Hall, Cooter, Kennedy, Beall, and others; was aggravated and hastened by the floods of the 15th and 16th, and was continued by the premature return and imprudence of the stampeders. To my mind, whatever it may have been elsewhere, it was here clearly infectious.

In entering upon the discussion of the pathology of cholera, I do not advance a new theory; the leading ideas were taught me, twenty years since, by my preceptor, Dr. Bœrstler, now of Ohio, and is one which is acknowledged, to a greater or less extent, by many others; but its paramount importance seems not to have been duly appreciated, therapeutically, until recently. Within the last two years, Prof. Edwards, of Cincinnati, has publicly challenged the attention of the profession to this pathology and a system of treatment based thereon. This theory is not based on *post-mortem* appearances affirmatively, but negatively; the knife shows no appearances

which can in the remotest degree account for the appearances preceding death. Pathological anatomy failing us, we must rely on physiological anatomy.

My first proposition is, that epidemic cholera is primarily and pre-eminently a disease of the nervous system, and more especially of the *sympathetic or ganglionic system of nerves.* The second proposition is, that it is a depression or paralysis of the powers of these nerves. That it is a disease primarily affecting the nervous system, is argued from the suddenness of the attack and fatal termination; from the fact that no *post-mortem* appearances have been discovered which indicate any disease of other parts sufficient to account in any degree for the *ante-mortem* appearances; and from the fact that disease or lesion of no other part of the system produces death so speedily without leaving decisive marks behind it. That it is a disease of the nervous system, is argued from its most common proximate causes, from the habits, temperament, and condition of its subjects. That it is more especially a disease of the *sympathetic* nerve, we learn from the *ante-mortem* appearances and the physiological functions of that nerve. What are these functions?

"The sympathetic thus appears to exercise a threefold office: first, that of a sensitive nerve to the parts to which it is distributed; secondly, that of a motor nerve for certain muscular parts; and, thirdly, that of a nerve to the bloodvessels. It is almost certain that the bloodvessels enjoy in their coats a power of contractility, and it seems highly probable that these nerve-fibres exercise an influence upon that contractility. Such an influence, it is evident, would materially affect the nutrition of parts of the bloodvessels which are subject to it; and as secretion is mainly dependent on the normal nutrition of glands, it is reasonable to suppose that that function likewise would be, to a certain extent, controlled by these nerves." The sympathetic is "a portion of the nervous system peculiar in its composition, having, as regards some of its constituent fibres, a special relation to bloodvessels, particularly arteries (and these are the fibres which are independent of the cerebro-spinal centres, having distinct centres of their own)." "Clinging to the coats of arteries, it follows them, for the most part, in their ramifications, and attaches itself to them, somewhat as ivy does to a tree." "The intestinal canal, between the stomach and the lowest part of the colon, receives no nerves direct from the cerebro-spinal system, and is therefore dependent solely on the sympathetic for whatever of sensibility it enjoys, or for such motor power as may be usually called into action by nervous influence." (Todd and Bowman.)

If tubal digestion and assimilation are subject to nervous influence, they are consequently dependent for that influence on the ganglionic system of nerves. Does this nerve regulate only the contractile action of the arteries, or does it extend an influence beyond the external tube? Does not the circulating mass also, through the medium of the endangium, feel the influence of this nerve of organic life, and is not its vitality maintained through this agency?

What are the appearances presented in a cholera subject? The patient at first feels languid and depressed; these symptoms are dependent on disturbance of the nervous system, and are more marked after the epidemic is fairly developed; he is harassed with borborygmus, dependent on deficient

ganglionic nervous energy; diarrhœa, at first slight and of the natural colour, but soon becoming thinner and lighter coloured, for want of biliary secretion, at last consisting of a limpid watery fluid, with a small quantity of whitish or pink-coloured flocculi, showing an absence of secretion by the intestinal tube and all the glands ordinarily emptying their secretions into it. As the intestinal tube shows no evidences, before or after death, of inflammation to such a degree as to produce such results, and the intestinal tube has no other nervous filaments, these phenomena are dependent on lesion of the ganglionic system of nerves. Spasms, not invariably, are attributable to disturbance of the nervous centres and their ramifications; suppression of urine, attributable to want of energy in the sympathetic nerve; coldness of the tongue and breath, a peculiar coldness and lividity of the skin; retrocession of the eye into its socket, injection of the conjunctiva and dryness of its surface, all dependent on lesion of the ganglionic system of nerves.

"He found that the division of the trunk of the sympathetic in dogs, opposite the third or fourth cervical vertebra, was followed with remarkable rapidity by a disturbance in the circulation in the eyeball, giving rise to a swollen and apparently inflamed state of the conjunctiva, a contracted state of the pupil, a flattening of the cornea, and a retraction of the eyeball, with the protrusion of the fold of the conjunctiva known by the name of the haw, and a flow of tears. Dupuy found similar effects resulting from the extirpation of the superior cervical ganglion in horses. Dr. J. Reid confirms these results of section of one sympathetic in the neck, as far as regards the eye; and he agrees with the other observers in stating that the injected state of the conjunctiva followed immediately after the section. In one case, he states that the redness of the conjunctiva took place a few minutes after the operation." (Todd and Bowman, p. 510.)

This demonstrates the truth of my second proposition incontestably, so far as the appearance of the eye is concerned; that is a thing tangible and visible. What is true as regards the eye, is true as regards every other organ or tissue of the body under the control of the ganglionic system of nerves. The establishment of that point necessarily establishes the whole proposition, because here is submitted to *the eye* of the observer the control exercised over the circulation by the ganglionic nerve. And with the circulation goes secretion and the nutrition of parts; but when we come to the digestive tube, and bear in mind the fact that "between the stomach and the lowest part of the colon" no nervous filaments are supplied except from the ganglionic centres, you have the explanation of the *quasi* appearance of inflammation that has been sometimes described as existing. Not only does this account for the injected condition of the intestinal tube, but also for the absence of secretion and the want of nutrition. The circulating mass receives no supply from assimilation, is deprived of the vital stimulus supplied by the sympathetic, dissolution ensues therein, its parts separate, and the tissues of the circulatory vessels and intestinal tube, also deprived of their vital energy, permit the principles of exosmose to come into play, from which results "rice-water"

discharges, consisting of the serum and portions of albumen of the blood. What pathological anatomy has failed to decipher is clearly shown by physiology and the *ante-mortem* appearances. In establishing this theory, reliance has not been placed on the writings of parties who had a particular theory to establish; these things were observed and written with no special reference to cholera, and therefore are most reliable.

A rational pathology alone admits of a rational system of treatment. In cholera, modes of practice the most opposite and irrational have had their advocates, from the first general outbreak of it to the present time, both in and out of the profession. These it is not my purpose to review, nor shall I occupy your space by notice of but one, not so much on account of its irrationality as on account of the serious manner in which this long-buried ghost, recently dragged from its grave, is again urged upon the profession. I refer to the system of injections, rectal and venous. As an adjuvant to *treatment*, anodyne and astringent substances, injected into the rectum, may sometimes prove serviceable, but cannot of themselves arrest a developed case of cholera, much less cure it. The injection of saline matters into a vein is less philosophic and less useful; if the artificial introduction of these substances into the blood will cure the disease, their natural existence there should have prevented it. Does or can a combination take place between the injected fluid and the crassamentum of the blood, anything like to its original and healthy condition? Will that combination be maintained, and the thin portions no longer be thrown off? Can you knock the heads out of a barrel and fill it by pouring water in at the bunghole?

In the earlier, or, as it is frequently called, the premonitory stage of cholera, when it consists of slight diarrhœa, with uneasiness in the bowels and a feeling of sickness, the cure is generally easy enough. The following I have found to answer a very good purpose: ℞. Tinct. opii, elixir paregoric, aqua menth., equal parts; half a teaspoonful every hour or half hour, until the bowels are checked; a large sinapism to the abdomen, go to bed, and keep quiet. The occasional use of ℥ss of brandy, and three or four grains of mass hydrarg., with gr. ¼ or ½ of opii, are sometimes necessary to regulate the secretions. Unfortunately, the practitioner is frequently not consulted in this condition of the disease. When the discharges have become frequent, thin, almost devoid of colour, vomiting, cramps, coldness and lividity of the skin are manifest, he is more likely to be called on. These symptoms characterize the second or congestive stage of the disease, and, if not speedily arrested, run into collapse. In this stage, calomel and opium have acquired and deserve more the confidence of the profession than any other of the heretofore commonly used agents; there is sound philosophy in their use, though they are frequently misused. I have found small and frequently repeated doses to answer the best purpose, and relied on them until the 21st of August last, on which day, in consequence of reflections excited by the scenes of the 19th, and the perusal

of Prof. Edwards's report, I resolved on and adopted the strychnia treatment, first in the case of—

Mary Cole, a mulatto girl, aged about 23, whom I was called to see on the 21st of August, at 8 A. M. She was vomiting, and purging "rice-water;" countenance sharp and shrunken; eye injected and deeply sunken; voice very weak; tongue and breath cold; respiration slow, with frequent sighing; pulse too irregular and indistinct to be counted; skin marbly cold, but dry; cramps occasional, with great thirst and restlessness. ℞. Strychnia gr. ¼; spt. terebinth. ℥ij; mucilage G. A. ℥vj. M. One teaspoonful every thirty minutes; large sinapism to stomach, and hot bricks to feet and legs. 10½ A. M. Has had but two doses of the medicine, which were ejected; pulse gone; inclines to stupor; thirst intense, and dejections continue; give the medicine every hour, and a tablespoonful of brandy and water half an hour after. At 3 P. M. Dr. Dailey saw her with me; she had taken but one dose of the medicine, and refuses the brandy; vomiting and purging continue, but decreased in quantity; the doctor thinks she may live an hour; before leaving the house, I gave her a teaspoonful of the mixture, and insisted on its repetition every hour, with a little ice to allay the thirst. From that time she took but three doses, which were retained up to 7 A. M. of the 22d; there was then a very slight tremor perceptible at the wrist; the discharges have nearly ceased; vomiting recurs whenever drink is taken. Give the medicine every hour, and nothing else. At 10 A. M. I saw her again with Dr. D.; he thinks she may get well, as reaction is coming on; give the medicine every hour, apply the hot bricks, and give no ice or anything else than the medicine. At 7 P. M. she had taken but one dose of medicine; would drink; vomiting and purging had returned; pulseless; comatose; skin perspiring freely; voice scarcely perceptible; eyes deeply sunken in the socket, and very much injected; apply a large sinapism to abdomen and to arms, at least six hot bricks to legs, and give the medicine every half hour, and nothing else, until the discharge has stopped or become coloured. At 7 A. M. of the 23d, she had taken four doses of the medicine; reaction coming on; had this morning a slight greenish discharge; give her two teaspoonfuls of rice-water once an hour, the medicine every two hours. On the 24th, she complained of great hunger; she was allowed that day a small quantity of blanc mange, and water in moderate quantities. On the 25th, arrowroot and soaked cracker; 26th, chicken water and rice; 30th, she was sitting beside a pot of bacon and beans; she took in all ℥ijss of the mixture, and no other medicine, and is now as fat and hearty as ever. Her sister, Liz, was taken with the disease on the 23d; gave her—℞. Protochlor. hyd. grs. iv; pulv. opii, gr. ½. M. f. pills, one every hour till purging is stopped. 24th, 8 A. M. Had taken three pills; collapsed; no pulse, and perspiring freely. ℞. Strychnia, gr. ¼; aqua menth., mucilage, āā ℥ss; one teaspoonful every twenty minutes. This formula was used because she complained of the smell of the terebinth producing vomiting; mustard plaster and hot bricks as above. 11 A. M. Has taken four doses; no discharge for the last hour; skin drying; pulse barely perceptible; give the medicine every hour until the discharges are checked or coloured. 5 P. M. Reaction is complete; secretion of urine; the last dejection green. She took ℥j of the mixture, and the day following—℞. Mass. hydrarg. grs. v; pulv. opii gr. ss. M. f. pill. Was taken for the purpose of arresting the dejections, which were a dark green and scalding; she was then put on the same diet with her sister.

Alice Riley, æt. 38, I was called to see at 10 o'clock of the 24th August; she had been taken the preceding day, and had been abandoned that morn-

ing by her physician, according to her statement. What medicine she had taken I did not, under the circumstances, stop to inquire; she was pulseless; the skin cold, livid, shrivelled, and bathed in a profuse cold sweat; cramps; limpid dejections; voice a whisper; eyes deeply retracted, and injected features; sharp and purple tongue, and breath cold. ℞. Strychnia gr. ¼; spt. terebinth. ʒij; mucilage ʒvi. M. 1 teaspoonful every half hour; half a dozen hot bricks to the legs, and no drinks. 12, M. Has taken three doses of the medicine; bowels quiet for the last hour; no vomiting or cramps; pulse perceptible at the wrist; skin drying off, but still cold. ℞. Proto-chlor. hyd. grs. v; pulv. opii, gr. ss; MM. f. pills ij; one now to be followed by the mixture, and pill alternately every half-hour; no drinks. 2 P. M. Skin dry, and becoming warm; pulse tolerably distinct; small; has urinated; bowels not moved; time to give the mixture; give it; then suspend, and let her have ice in small quantities, once in twenty or thirty minutes. 7 P. M. Still improving; no motion of the bowels; take one pill as prescribed this morning. 25th, 8 A. M. Had a comfortable night; had a dejection this morning, slight and green. Arrow-root seasoned with cinnamon. 26th. Taken the case into her own hands on the 27th; went down stairs, and engaged in nursing.

Henry Knierim, æt. 55, German, of intemperate habits, called me August 28, 6 A. M. Vomiting and purging a clear limpid fluid, with a slight pinkish deposit of flocculi; cramps; pulse hardly perceptible; skin bathed in a profuse perspiration; cold, shrivelled, and purple tongue; cold; eyes sunken and injected. R. Strychnia gr. ¼; spt. terebinth. ʒij; mucilage g. Arab. ℥ss. M. 1 teaspoonful every thirty minutes; sinapism; epigas.; hot brick to legs; brandy and water ℥ss, occasionally. 7½ A. M. Has taken the mixture and brandy; vomiting continues, and dejections; pulseless; give the mixture every twenty minutes; no other liquids or ice. 10 A. M. Purging has ceased for the last hour; pulse again perceptible, and skin less wet; continue medicine every hour. 6 P. M. Reaction complete; had one dark green operation, and discharge of urine; skin still moist; no cramp; take ʒss of the mixture every three hours, if bowels should be moved so often. 29th, 6 A. M. Rested well; took but one dose of medicine, but complains of great thirst and nausea; re-apply sinapism. 10 A. M. Has drunk a glass of lemonade; vomiting and purging of a clear fluid; pulseless; livid and sweating; seems to be rapidly sinking; give the mixture every fifteen minutes, and surround with hot bricks and bottles of hot water. 12 M. The purging has ceased; pulse perceptible; vomiting occasionally of a greenish fluid. Apply sinapism, and keep up hot applications; give the medicine every hour. 4 P. M. No dejection; has urinated; vomits, or rather regurgitates, when he attempts to raise himself, or take a drink; suspend the medicine. 30th, 7 A. M. Reaction seems complete; but vomiting of the greenish fluid continues; apply spiced whiskey to epigastrium, hot as it can be borne; take no drinks. 5 P. M. Vomiting still continues. ℞. Acid. hydrocyan. gtt. xvi. bicarb. soda ʒss; aqua font. ℥j. M. 1 teaspoonful every hour until the stomach is quiet; continue hot applications. 31st, 6 A. M. Vomiting of the greenish fluid continues, but less frequently; bowels moved twice; greenish. ℞. Acid. hydrocyan. gtt. xvj; acet. morph. ¼ gr.; aqua font. ℥j. M. 1 teaspoonful every hour. 11¼ A. M. Stomach seems quiet; suspend medicine, unless the vomiting returns; abstain from drinks or food till evening, then take rice or chicken-water, seasoned well with cinnamon; recovered.

John F. Fulton, German, æt. 50. August 30, 2 P. M. Collapsed. ℞. Strychnia ¼ gr.; spt. terebinth. ʒij; mucilage ℥ss. M. One teaspoonful every

half hour; he took four doses, when it was suspended; he was doing well until the next day, when he took a dose of beer; after this the discharges recurred and mixture; of this he took five doses, then suspended it; he was doing well until the morning of the 2d September, when a plate of bonny-clabber started him the third time. The mixture was again resorted to, until he had taken four doses; the diarrhœa was suspended, but vomiting of a greenish fluid continued until the 5th, when he died. The vomiting in these cases was attributable to the overaction of the strychnia; in the case of Knierim, this was counteracted by hydrocyanic acid; it failed in the case of Fulton, because its use was not persisted in beyond a dose at my visits, and he was indulged in drinks.

August 30, 4 A. M. Was called to see Mrs. R. R., aged 55, of exceedingly frail constitution; had in the spring an attack of typhoid pneumonia, from which she had not recovered fully; was taken with diarrhœa about midnight; pulse barely perceptible; cramps severe; skin cold, moist, shrivelled, and purple; eyes sunken; injected; and between the cornea and inner canthus of the left eye, the sclerotica presents a greenish-black spot, irregularly circular, about two lines in diameter. Ordered ℞. Strychnia ¼ gr; spt. terebinth. ʒij; mucilage ʒvj. M. 1 teaspoonful every hour, to be alternated at the half-hour. ℞. Protochlor. hyd. gr. iij; pulv. opii gr. ss. MM. f. pill, and a teaspoonful of brandy; rub with dry mustard, until hot bricks are procured, with which surround. At 10 A. M., the bowels were quieted, and the skin more dry; both eyes presented the dark spot between the cornea and inner canthus; enlarging; she died about 3 P. M. Whether the medicine arrested the discharges, or they ceased because there was no more fluid to escape, I will not determine; but at my first visit it was evident that no medication could save her, as the process of gangrenous disintegration was manifest in the eye, indicating the want of sufficient vitality in the ganglionic system to respond to medicine.

The following case was furnished by Dr. B. A. Dougherty:—

August 31. 4 A. M. Called to see James C——m. Vomiting and purging "rice water;" cramps in legs and abdomen, countenance livid, tongue cold, pulse small and rapid; was seized with vomiting and purging the preceeding afternoon. Ordered ℞. Prot. chlor. hyd. gr. iij; pulv. opii gr. ss; pulv. capsici grs. ii, every half hour. Sinapisms to abdomen and extremities. 7 A. M., is sinking, vomiting and purging continue. ℞. Sulph. strychnia gr. ss; ol. terebinth. ʒij; muc. g. Arab. ℥viij; one teaspoonful every 15 minutes. 4 P. M., vomiting very slight, diarrhœa arrested; tongue warm, cramps slight, pulse improving, and warmth returning to extremities. 7 P. M., tongue cold, pulse extremely feeble, vomiting much increased; had one or two discharges, rather green and thin; had taken two tumblers of beer; continue mixt. and give brandy julep. Sept. 1, 7 A. M., vomiting a light-green fluid occasionally, no diarrhœa, extremities warm, and assuming a natural appearance; continue. 3 P. M., much improved, vomiting nearly same as in the morning; suspend strychnia. ℞. Prot. chlor. hyd. grs. x; pulv. opii gr. i; continue brandy. 8 P. M., vomiting ceased and altogether very much better; no action on the bowels; directed beef-tea, rice, and brandy. Recovered.

My partner, Dr. J. M. Smith, at my request, furnished the notes of the following case of a male infant, 3 years old:—

"I saw him first on the 22d August; had some diarrhœa, with occasional vomiting. There was nothing in the appearances to indicate danger, and but for the existence of cholera in the neighbourhood, no reason to apprehend

any. I gave prot. chlor. hyd. with a small portion of opium, and a carminative mixture with tr. opii added, to be given every 4 hours as might be required to restrain the bowels, directing mustard plaster and hot whiskey cloths to be applied alternately. Until the morning of the 25th there was no material change; the passages were not frequent, and still coloured. I learned, on the morning of the 26th, that he had had several watery colourless passages during the night, not staining the clothes; the ejections had the same colourless appearance. I gave him one or two doses of calomel and opium and the common cholera mixture, to be repeated after every operation, with brandy and ice water, and occasionally ice water alone. The passages in frequency and amount more lessened, but thin and colourless; in the evening he took no notice, and fearing the opiates by the mouth, gave spts. camph. and aqua menth. every two or three hours, and enema with tr. opii and spts. camph. after each operation. 27th. Had been restless during the night, but noticed nothing; had several small, thin, and colourless passages; continued the remedies without much hope of doing any good. During the day the passages continued about the same; in the evening more depressed; pulse extremely feeble; extremities only kept warm by hot applications; skin clammy, but no very free perspiration; directed the spts. camphor, the enema occasionally, and brandy or wine and water sinapisms to extremities. 28th. Rather more depressed; been insensible during the night; his death had been hourly expected by the family. Thinking no evil could possibly result, determined to give the strychnia (I had not before given it to small children). I directed the prescription kept in the office, adding two parts water to one of the mixture,[1] directing half a teaspoonful to be given alternately every hour with the spts. camphor until he had taken three doses, then to suspend it. M. He was much in the same condition; no operation; skin dryer. In the evening had had no passage; extremities rather warmer; still insensible; directed one dose of the strychnia, and the spts. camphor to be continued. 29th. Restless during the night; had one slight dark passage; takes no notice, but more expression of the eye; skin warm and dry; pulse distinct; directed one dose of the strychnia and spts. camph.; rice water with a little wine. Evening, observes things around, but does not speak; had two small dark passages. Continue spts. camph., rice water, or arrowroot, with wine. On the 30th he spoke, and from that time continued to improve."

I shall add but a brief history of my own case:—

I had been suffering from dysentery when the epidemic began, say 6th August; circumstances would not then permit my attending to it; it was kept in moderate bounds by occasional small doses of blue mass and opium, and laudanum, with low diet, until the 16th, when the discharges were nothing but bloody mucus, when, at the urgent entreaty of Drs. J. M. Smith and G. C. Perry, I agreed to attend to myself; at 10 o'clock, I took prot. chlor. hyd. ℈j; pulv. opii j, and went to bed; 4 hours after, took ol. ricini ℥i; and next morning was out by daylight; the epidemic increasing. With a constant uneasiness and disposition to diarrhœa from that time up to the 20th of September, I struggled on by keeping up the use of blue mass et opium and anodyne mixture. On the evening of the 19th September, a decided diarrhœa manifested itself; on the morning of the 20th had two copious light-coloured, thin discharges, which brought me to the sofa at 10 A. M., when I took ℥j of the strychnia mixture of the above formula. This quieted the commotion. On

[1] This mixture contained strychnia 1-16th gr., spts. terebinth. gtt. xij to ℥j.

the 21st ordered arrowroot, which again produced discharges of yeasty light-coloured appearance, but consistent—℞. Prot. chlor. hyd. grs. iv; pulv. opii gr. ss, of which two pills were taken. On the evening of the 22d I again tried food, with the same result; during the night took two doses of the mixture, and at daylight had a clear limpid discharge, with flocculent deposit, amounting to a quart. I immediately sent for Dr. J. M. Smith, feeling that another dose of the strychnia mixture would produce vomiting, the turpentine, as I had found in some other cases, provoking the stomach, stating my inability to take more of it. He then had it prepared as I requested, substituting aqua menth.—℞. Strychnia gr. ¼; aqua menth., mucilage, āā. ʒiij. Mix. Of this a teaspoonful was given immediately; in a few minutes I felt it would do its work. From my previously exhausted condition, the Dr. feared that farther discharges would so sink me as to render reaction impossible, and to aid in preventing that, a dose or two of the anodyne mixture were given, with anodyne and astringent suppositories; the evening of the 23d, the 24th, and 25th were blanks to me; four doses of the strychnia of the last formula were taken. On Monday morning, the 26th, I awoke to consciousness and a stomach that would retain nothing. Ice, juleps, camphor and mint water, creasote, etc., returned as soon as swallowed. Sinapisms and spice-bags all proved useless. A blister was applied, and a few hours after a teaspoonful of the hydrocyanic acid mixture, settled the difficulty. On Tuesday drinks were allowed in small quantities, Dr. S. having left immediately after giving the hyd. acid, under the full impression that that too would fail, and he should see me no more in life. In my case, as in the case of the two Germans above related, the remedy had been pushed farther than necessary. All expedients failed to allay the over-excitement of the sympathetic, until the hydrocyanic acid was administered; in my case it acted more promptly than in any others in which I had administered it, probably owing to the fact that I got a larger dose; the Dr. having given me one-third of the mixture, when he intended it should be one-fourth.

Much more might be added, but it would be asking too much of your valuable space. In relating cases, the object has been to give bad cases, to show fully the action of the remedy; from the details given a correct judgment can be formed; the minutiæ of treatment must be regulated by each practitioner, according to the peculiar type which the disease assumes in different localities. General principles are what I have here aimed at exposing; the reader must draw his own deductions, and shape his practice according to the cases he has to deal with.

Cumberland, Md., December 7, 1853.

ART. VII.—*On the Internal Use of Chloroform.* By HENRY HARTSHORNE, M. D., of Philadelphia.

SINCE 1848, when some account was given in this Journal of experiments with chloroform, internally administered, it has been variously and extensively used by practitioners in different parts of the world. It is now generally recognized as being, when so used, a narcotic of the mildest and yet most powerful character, and as possessing in its pungency, also, a quality which recommends it in some cases above other anodynes. While the untoward accidents which have followed its use in many cases as an anæsthetic by inhalation have produced a growing distrust of its safety in that capacity, experience has shown that, taken into the stomach, it is as totally free from danger as any other drug; and its employment is destined to be yet much more widely extended.

The object of this article is chiefly to make some remarks upon its *dose* and *mode of administration.* Many practitioners within the writer's knowledge hesitate, from their recollection of its power as an anæsthetic, to give it in doses of more than a few drops; and as the drop is exceedingly small, such doses are really often insignificant. The writer can assert, from positive experience, that a fluidrachm of chloroform, taken by the stomach, is not more than equal, in soporific effect, to 30 or 35 drops of laudanum. In doses of 50 to 75 drops (about 15 minims), I have given it every half hour for several hours together. It differs from the opiate preparations in the promptness of its hypnotic action, the much shorter period of its duration, a less degree of cerebral oppression, and the absence of all stimulus to the circulation. It might be called a "diffusible narcotic," comparing in this respect with opium as ammonia does with alcohol. To produce much effect with it, repeated doses, at short intervals, will be necessary.

The advantages which the above peculiarities afford in many instances of disease will suggest themselves to every physician. We may leave them to do so, proceeding to remark briefly upon its mode of administration.

The pungent property, already alluded to, causes it to require plentiful dilution, which is, of course, facilitated by the addition of some demulcent. Perhaps the *orgeat syrup* is the best. Every fluidrachm of chloroform should have at least two fluidounces of water with it when taken; and it will need, if in ordinary gum mucilage, considerable agitation to resuspend the particles immediately before swallowing. When taken in aqueous mixture alone, however, unless in very small doses, it produces nausea with some persons. This is entirely prevented by the addition of a strong aromatic, or, still better, by giving the chloroform in aromatic *tincture.* From the ready solution and kindred action of camphor with chloroform, their combination has become a very common one. For many purposes, however, a still better preparation is

a sort of chloroform paregoric, or compound tincture of chloroform, *e. g.:* R. Chloroform f℥ij; sp. camph. et tinct. opii, āā f℥iss; Ol. cinnamom. gtt. viij; alcohol f℥iij. M. et fiat tinctura. Dose, from 5 to 30 minims, or more, as required.

The most admirable effects have been witnessed from the administration of chloroform, as above combined, in malignant cholera. In the summer of 1849, my attention was first called to it while attending a very severe case of cholera with the late Prof. W. E. Horner. The prompt and signal restoration accomplished in that case, from a state of collapse, was evidently due to the exhibition by Prof. Horner, every five minutes, of a few drops of a combination of chloroform, oil of camphor, and laudanum, with ice, and warm frictions externally. The writer's conviction was very strong that the *short interval* between the doses was an important item in the treatment; and in pursuing the same plan in a number of subsequent cases, several of which were of the most alarming violence, an extremely gratifying success was obtained. The opinion has thus been formed, that no other plan of treatment gives so much promise in the management of malignant cholera as a combination of powerful yet mild antispasmodics, such as above described, with ice, internally, and persisting external stimulation. It may be mentioned that the writer has added, with apparent advantage in a number of cases, sp. ammon., and occasionally creasote, in minute doses, to the preparation above designated as a compound tincture of chloroform. A formula of a very similar character is now quite extensively used as a gentle carminative and anodyne, or antispasmodic, and may be often substituted with benefit for the common paregoric.

REVIEWS.

ART. VIII.—*The Transactions of the American Medical Association.* Instituted 1847. Vol. VI. Printed for the Association, Philadelphia, 1853. 8vo: pp. 869.

WHATEVER differences of opinion may be entertained as to the propriety of a change in the organization of the American Medical Association, or in regard to the proper course to be pursued by it with the view to effect a reform in medical education and the establishment of a higher standard of attainments for admission to the doctorate, all must confess that it has, at least, issued a series of printed *Transactions* of a highly creditable character, each successive volume of which has excelled the preceding in the general interest and intrinsic value of its contents. We would not insinuate, however, that the entire labours of the Association have been confined to the publication of six annual volumes of *Transactions*, creditable as these unquestionably are. Even they who look upon it, and upon its acts, with the least favourable eyes, will not, we think, deny that, however unsuccessful it may as yet have been in reforming the medical schools, and closing the door of admission into the ranks of the profession against the illiterate and uninstructed, it has, nevertheless, exercised upon the profession at large, throughout the greater portion of the United States, a decidedly beneficial influence. By the attention it has directed to the present condition of medical instruction in this country, and the requirements for graduation as a doctor in medicine in our several schools, and the inquiry it has excited into the means best adapted to promote the welfare of the profession generally, much good has been already effected. While, by the impulse it has given to the organization of the medical men of our country into county and State societies, and, in this manner, enabling them to realize their community of interests, and the importance of co-operation in the maintenance and promotion of those interests, the Association has brought into action agencies the working of which cannot fail ultimately to elevate the character and standing of our profession, and thus to augment its efficiency. It has, at the same time, through the organizations it has already been chiefly instrumental in effecting, caused the collection and comparison of the observations of a large number of practitioners upon the character, causes, and proper treatment of the diseases incident to the different sections of the United States, and the presentation of these, that would otherwise have been lost to the profession at large, as a valuable contribution to the common stock of medical knowledge.

The constitution of the American Medical Association may be defective—it may not always pursue the wisest course for the attainment of the great objects for which it was instituted; still, no one can in truth deny that it has already worked out much of good for our profession, and we may add that it is our firm belief it is destined to effect still more.

To those who affect to believe that the labours of the Association have resulted in nothing, we would say, in the language of Dr. Wellford, from his address, delivered at the opening of its last annual session :—

"But, gentlemen, if it be nothing to have reduced an amorphous, chaotic, professional mass to something like symmetry and order; nothing, to have awakened attention to important defects in preliminary and medical education, and, in some measure, to have removed them; nothing, to have caused the establishment and reorganization of local and State medical societies; nothing, to have caused the enactment of wholesome laws, both by the Federal and State governments; nothing, to have produced scientific papers of acknowledged ability and erudition; nothing, to have awakened dormant talent, and elicited a vernal bloom which promises a rich harvest of autumnal fruit; nothing, to have acquired a reputation which renders even its membership a title of honour and distinction; is it also nothing, by unaided, intrinsic moral power, to have bound in one code of medical ethics, thousands of men in every section of this wide Union, each one free to act according to his own individual views, but yielding them in cheerful obedience to the opinions of the Association, with as much deference and submission as if it were armed with the power and terrors of penal law? Is it nothing, unendowed with the compulsory authority of legal enactment, or the seductive influence of mileage and per diem allowance, annually to convoke such an assembly as I have now the honour to address? Such a congress, of such materials, and under such circumstances, presents a spectacle of moral beauty, to which the opponents of medical reform cannot be insensible. It must command their respect and admiration, even if it fail to secure their co-operation. I know not, gentlemen, what may be the effect on others of an occasion like this, but for my single self, when I thus recognize the denizen of the city and the forest; him of the frozen north, and of the sunny south; him of the mountains, the rivers, and the prairies of the west, with him from the borders of the broad Atlantic, bringing their various opinions and prejudices, and casting them together as a sacrificial offering on the altar of science and professional patriotism; when I see them animated by the same honourable and lofty impulse, and, in fraternal harmony, uniting their efforts to attain the same grand results, I feel an honest pride in my profession and my country, and an abiding confidence that to such sons the high destinies of both may be safely intrusted."

As journalists, our concern is less with the internal polity and general reformatory measures of the Association, than with the results of its labours, as exhibited in its published *Transactions*. We pass by, therefore, the minutes of its business proceedings, and all discussion as to the policy of the very decided conservative feeling evinced at its last session, in reference to the radical changes in its organization presented for adoption; as well as any inquiry into the probable influence upon its usefulness and permanency of an attempt, in the present unorganized condition of the medical profession throughout a large portion of the United States, to restrict the representation to delegates from State or county societies; and shall proceed at once to consider the several reports and essays embraced in the volume before us.

The reports of the special committees are preceded by the very earnest and eloquent "Address" of the late President of the Association, Dr. Beverley R. Wellford, of Virginia, delivered at the opening of the session of 1853.

The address commences with a brief sketch of the history of the Association from its institution in 1847 to the commencement of the present year, with a few remarks on the leading features of its organization, and then enters upon an examination of what the Association has already effected towards the accomplishment of the leading objects for which it was instituted. Dr. Wellford treats this portion of his subject with great ability. He believes that the Association has accomplished much, but is far from supposing that every necessary reform in our profession has as yet been achieved by it.

"It may," he remarks, "be fairly assumed, that the American Medical Association has thus far succeeded to an extent fully as great as ought to have been anticipated. Nevertheless, it is admitted that much remains to be effected

before its power is fully developed, or its objects and its aims are fully attained. Dependent as it of necessity is on the co-operation of the individual members of the profession, it is not possible that the Association can consummate its designs, or attain the zenith of its power and influence until the medical men of every neighbourhood are formed into local societies, and State societies are organized in all the States of the Union. The more uniform the organization, the more effective it will prove in its practical working, and uniformity can only be obtained by some plan of general application recommended by this body. The central orb of medical organization in the United States, it must throw its light on the periphery before the reaction can be felt, and the concentrated influence of the whole profession act as a combined and powerful unit. We have the material—abundant, effective material—but as yet unavailable, and, to a great extent, unappreciated, because it has not yet been illuminated by the light of medical progress. That light must emanate from this Association, and it will be reflected and thrown back upon its parent, from every hill and valley in the land."

In proceeding to a brief review of the labours still to be accomplished by the Association, Dr. Wellford enforces the necessity of that complete and uniform organization of the physicians in every portion of the United States, above alluded to; an organization that shall constitute each and every one of them "an integral part of the great whole," so that the interest of the individual and of the mass shall be identified, and made mutually to sustain and promote each other.

Another object to which reference is made by Dr. Wellford, as one of primary importance for the advancement of medical reform, is a proper regulation of the license to practice—the investiture of the profession with the right to exclude from its honours those, at least, who wear its livery without acknowledging its authority; to draw the line of demarcation between the true doctor of medicine and the pretender and charlatan. The attention of the Association is likewise directed to the necessity of State legislation to restrain the domestic adulteration of drugs and medicines. The address concludes with an appropriate and feeling allusion to the loss the Association has sustained by the death, since its preceding session, of more than one of those who then participated in its councils, and "devoted their influence and their gifted intellects to the advancement of medical reform." Of these are especially named "the calm and philosophic DRAKE, the eminent and learned HORNER."

Melancholy as was the task of communicating these losses to the delegates assembled at the last session of the Association, how much more so will be the task of him upon whom the duty devolves of opening the ensuing session; who will come with the heavy tidings that, since the Association last assembled, by a calamity as unexpected as it was swift and fatal, seven of its members had been swept from existence in the midst of health, and whilst pursuing a career of usefulness as honourable to the profession of which they were cherished members, as it was valuable to the communities amid whom their lot had been cast.

The entire address of Dr. Wellford is deserving of the serious attention of every American physician. Its extensive circulation would be a means, we are convinced, of placing the true character and sphere of operation of the Association more clearly before the profession, and of removing some prejudices and misconceptions in regard to it, which, from whatever cause they may have originated, have been propagated, it is to be feared, from motives that originate less in a love of truth and justice than in selfish and interested feelings.

The first of the reports, as they are arranged in the volume before us, is

that of the Committee on Medical Education. The report is drawn up by the chairman of the committee, Dr. Z. Pitcher. It is marked throughout by a manly independence of thought on the important points involved in the general subject of which it treats, and much sound sense in the leading conclusions to which its author has arrived. It may, perhaps, disappoint, on the one hand, such as had formed for themselves an ideal model of a perfect system of medical education, which, without the slightest consideration as to the peculiar characteristics of our national character and institutions, and the state of society throughout a large portion of our widely extended territory, they had hoped to see speedily carried into effect, through the instrumentality of the American Medical Association; and on the other hand, induce those who look upon the present condition of our leading Medical Schools as demanding little if any improvement, to exult in the supposed abandonment by the Association of the high ground assumed by it, in its outset, in respect to medical education. By a careful perusal of the report, however, it will be perceived, we think, to be as positive in maintaining the necessity of arousing "the profession of the country to such an effort as shall shake from itself the reproach of ignorance and of quackery, by which it has been humbled in its own estimation, and abased in that of its fellow-men," as either of its predecessors.

The aim of its author would appear to be, to point to the means by which, in his estimation, reform in medical education may, under the existing state of things in the United States, be most certainly and speedily promoted.

"Your Committee," he remarks, "have, as they conceive, sufficiently elevated ideas of the mission which the medical colleges now in being are designed to fulfil, and feel an honourable pride in tracing their professional paternity to this source. They also feel that one thing more is wanted as a remedy for the evil just referred to (the prevalence of quackery), and that is the establishment of free colleges for the preparatory and professional education of the young men now scattered over the wide and half-cultivated domain of the West."

To show that such a measure can be carried into effect, notwithstanding the popular character of our political institutions, the report refers to the organization of the University of Michigan, which is the only institution in the country endowed by Government and regulated by State authority. After giving a brief sketch of the course of study pursued, and the regulations and requirements for graduation, established in this institution, the report proceeds as follows:—

"We are aware that former committees have objected to an increase in the number of medical schools, so situated as not to give to their pupils the benefits of hospital practice; the reasons for which, at first sight, appeared entirely satisfactory, and may do so now to a large majority of the Association. We believe that this subject should be examined from two distinct points of view, one of which exhibits the character and qualification of those who graduate at the best schools, and the other, the character and influence in society of that other multitude, who choose to exclude themselves from all these advantages, but come, nevertheless, by some illegitimate entrance, into the great professional amphitheatre. If there was a necessity for studying this subject only from the first point of view—of looking only to the effects produced upon the pupil by his attendance upon the college lectures and the hospital clinique, and if we could leave out of sight and out of mind the great number of practitioners with which the country would be filled—if the elementary schools of medicine were any less accessible than they now are, there would be no division in sentiment; no dissent from the opinions expressed by preceding committees, touching this matter. If there were in existence laws, which could

be enforced, for restraining irregularities in practice, and if none dared exercise the functions of the physician except he were regularly invested with the baton of office, there would be great propriety in limiting the number of schools, and, at the same time, increasing their demand upon the mental energies of the pupil, as conditions precedent to receiving a degree.

"In the absence of such laws, and for the want of any power to bear upon the profession, other than the power of opinion, the wisest course, in the judgment of your Committee, would be to extend the hand of fellowship to all such schools, as, having a competent faculty, shall give a course of lectures on general, comparative, and descriptive anatomy; physiology, and its application to pathology; on chemistry, with its relations to pharmacy and toxicology; on materia medica and therapeutics; the principles of surgery; obstetrics, including the doctrine of ovology; and on the principles and practice of medicine.

"If such schools could be restricted in conferring degrees to the grade of Bachelor of Medicine, a practical and valuable distinction would be made between those which teach the elements of medical science, and that other class, having their seat in the great commercial cities, and whose propinquity to hospitals enable them, if their advantages are rightly improved, to combine the inculcation of principles with their practical application and elucidation."

This leads the Committee to a consideration of the subject of clinical instruction. Its great importance as a means of preparing the student for the successful practice of his profession is admitted in the outset.

After a few pertinent remarks on the total inefficiency and absurdity of the system of clinical instruction as now generally pursued in the hospitals of the United States, the report holds the following language, in the correctness of which we fully coincide:—

"One object to be accomplished in bringing together the pupil and the patient is to train the perceptive faculties of the student; to educate, in fact, his sense of touch, his eye, and his ear. How much progress is made in this process, except by the resident pupil of a hospital, is very well known by students and teachers.

"Because the end has not yet been attained, we would by no means relinquish the pursuit. We would reconstruct our hospital organizations, and adapt them to the wants of the time. This could be done by erecting them into schools of practice, with a special faculty, whose plan of instruction should have a direct relation to the cases in their wards, so that each one should become an illustration of the text of the professor. Schools thus constituted, and authorized to confer some distinctive honour upon their graduates, would fill a hiatus in our system of medical teaching. A supplementary school of practice, conducted on the plan proposed, would obviate the objections now made to clinical instruction, and do away very much with the sentiment or feeling of jealousy entertained towards the medical schools in the country, which not only do great good, but prevent infinite evil. How they do this is best understood by those members of the Association who come from sections of the country sparsely populated. They are best aware how many young men without their instrumentality, would pass from the office of the private preceptor, without the advantages these schools can give them, wanting in that professional *esprit de corps*, which the associations of the anatomical theatre and the lecture-room do so much to foster the growth of in the breast of every graduate who recognizes the influence of a medical *alma mater*. This Committee, then, would not discourage the organization of medical schools in different sections of our country, but would foster them as places fitted and designed to teach the elements of the science of medicine, and trust to the influence and example of the private instructor, who is emphatically the true clinical teacher, and to the hospitals, as schools of practice, to teach the art of applying the principles which the faculties of these schools have imparted. In this way the number of uneducated young men now permitted, by the absence of salutary laws in all the States of the Union, with only one exception, to exercise the functions of phy-

sicians, will annually diminish, and be replaced by those having a higher sense of professional honour, because a wider range of professional attainments."

The report closes with some very sound remarks on the necessity of a more thorough and extended course of preparatory study before commencing that of medicine.

The following resolutions are appended :—

"1. That the Association reaffirm its formerly expressed opinions on the value and importance of general education to the student and practitioner of medicine, and that it would gladly enlarge its rule on this subject, so as to include the Humanities of the schools, and the natural sciences.

"2. That, in the opinion of this Association, a familiar knowledge of the elements of medical science should precede clinical instruction.

"3. That, in order to accomplish the latter, the hospitals, when they shall be elevated to the rank of schools of practice, and the intelligent private preceptor, are the most effectual instrumentalities to be employed."

The Report on Medical Literature, which follows, is by N. S. Davis, M. D., of Illinois.

It is a well-written and very sensible report, doing full justice to the general character of our native medical literature, not losing sight of its more prominent defects, and presenting a few sound practical suggestions for its improvement.

We should be pleased to quote largely from this report, but fearing to extend this review to an unreasonable length, we shall restrict ourselves to the following remarks of Dr. Davis on the general character of our medical periodicals.

"Judging from the comments made by the several committees on medical literature heretofore appointed by the Association, we are constrained to believe that a decided improvement has taken place in the original department of medical journalism during the last two years. Certain it is that the use of the microscope, and its application to physiological and pathological researches have become familiar to a much larger number of the members of our profession; and an increasing disposition to enter upon those inquiries requiring original experiments and a thorough knowledge of organic chemistry, is plainly visible to the careful observer. That much of this is due either directly or indirectly to the influence of this Association, and its auxiliary Societies in the several States, is undoubtedly true.

"But while we have derived much pleasure from the examination of some portions of our periodical literature, we are constrained to acknowledge that other parts of it are extremely faulty, if not entirely worthless. Thus, we find some articles embodying allusions to cases of disease or injuries, so meagre and incomplete in details that neither the writer nor any one else can deduce a conclusion from them; or, in some instances, be certain of the nature of the disease or accident intended to be described. These seem to answer no other purpose than to fill a certain space in the *Journal*, and afford the author the pleasure of seeing his name in print. Another class of articles, equally defective, and far more mischievous, are made up of what is intended for a report of individual experience in the treatment of some particular disease, and hence are generally regarded as *eminently practical* in their character. They most frequently commence by stating the residence of the writer, and the fact that within a certain length of time a particular disease, or class of diseases, has prevailed to such an extent that 'a specified number of cases has come under his own observation.' Perhaps a brief description of some of the leading symptoms is given, couched in the most general terms; and sometimes a vague opinion is expressed in regard to the causes and pathology of the disease. An outline of the treatment adopted, with its effects, stated in terms equally general and indefinite, completes the article. The object of such writers seems to be simply to set forth the efficacy of some particular remedy in the treatment

of a particular disease. Hence, they omit altogether a clear statement of the topography of their locality; the particular season when the disease was most prevalent, the character and habits of the class most affected, and such an accurate and detailed description of the disease, with its effects on the various organs and functions of the system, as will enable the reader either to judge correctly of the true relations of the remedies employed to the course and termination of the disease, or to compare it with the phenomena of the disease called by the same name in his own locality."

We pass over the judicious remarks of the reporter on the general character of the review department of our medical journals—a most important one if faithfully and ably conducted.

Dr. Davis maintains that we have a respectable and valuable medical literature of our own, which is every year rapidly increasing in extent and importance. He denies the charge that in medicine we are mere copyists and servile followers of our transatlantic brethren.

"Deriving," he remarks, "our existence as a nation from Great Britain, existing, indeed, for a long period as a part of that empire, we necessarily inherited at our birth a portion of her science and her literature, which furnished the basis for our own. And, for a long period, also, the circumstances and habits of our countrymen, and especially of the members of our profession, were not favourable to the cultivation of the more abstruse and experimental branches of science. Hence, for the advancement of experimental physiology, animal chemistry, and the minuter researches in morbid anatomy, we have been mainly indebted to Europe. But, notwithstanding this, we have had a medical literature of our own; not borrowed, not a mere imitation, but originally and truly American, from the days of Benjamin Rush to the present time. As we should expect, in a thinly populated country, subject to the prevalence of acute diseases of an active grade, the chief attention of the profession was concentrated on matters of direct practical interest and application. A direct inquiry into the history, causes, and treatment of the more important diseases would be the first subject of the practitioner.

"The same circumstances that were unfavourable to the carrying on of abstruse and experimental investigations were equally adverse to the production of extensive treatises on any of the departments of science. Hence, as the attention of the profession was fixed chiefly on topics of immediate practical interest, it naturally found its expression in essays, monographs, and periodical journals, rather than in volumes requiring more leisure for their preparation, and involving greater expense in their publication."

On the "Agency of the Refrigeration produced by Upward Radiation of Heat, as an Exciting Cause of Disease." The report on this important question in etiology, presents a very fair abstract of the philosophy of the subject, and of the leading facts having a direct relationship with it. It is calculated to direct attention to a frequent cause of disease, that has heretofore been too much overlooked, but which, we suspect, will be found, upon a closer investigation, to play a more important part in the production of what have been denominated malarious diseases, than any supposed poisonous emanations from the soil, or miasms resulting from the decomposition of vegetable matter. The efficiency of the refrigeration produced by upward radiation of heat as an exciting cause of disease, has been clearly established, but all the circumstances under which its morbific influence is manifested have not been determined. To those who have the opportunities presented to them for its prosecution, a careful investigation into the extent of its operation as an etiological agent, the subject is recommended as one favourable for the development of highly interesting and valuable results.

The report before us, although an able exposition of the present state of our knowledge in respect to it, possesses but little originality; it is to future ob-

servations that we must look for a full and practical development of the subject in its relationship to the causation of disease.

The next report in order is that of Dr. S. D. Gross, of Louisville, Kentucky, on "The Results of Surgical Operations in Malignant Diseases." This is a most able and valuable report on a question of the deepest interest to every surgeon; in elucidation of which, it presents all the more important facts and observations derived from the writings of the ancient and modern authorities, and from the communications of numerous contemporaries, with a series of practical deductions that render it at once a faithful and instructive monograph on one of the most perplexing points connected with the surgical treatment of malignant diseases.

The first part of the report is devoted to general observations on the nature, objects, and difficulty of the inquiry to which it is devoted; on the origin of malignant diseases—their hereditary nature—their latency—their reproductive tendency after removal; on the circumstances contraindicating surgical interference—general rules respecting the manner of conducting the excision of malignant tumours, and the treatment after the operation. Each of these points is investigated with the utmost candour; truth alone, irrespective of a preconceived hypothesis, being the end evidently aimed at by the author. It is admitted that the results arrived at are often rather negative than conclusive—that Dr. Gross has been more frequently obliged to indicate our entire ignorance on those points essential to a satisfactory settlement of the question as to the propriety of surgical interference in diseases presumed to be of a malignant character, than to lay down positive rules for determining the probable result of such interference in any given case; still, the result of his investigation is valuable, not only by directing attention to the insufficiency of our data for the formation of a correct diagnosis of malignant diseases, but, also, by teaching us caution and circumspection before determining on the excision of diseased parts, and still more, in giving any positive prognosis as to the ultimate favourable result of the operation.

"It need hardly be said," remarks Dr. Gross, "that the subject intrusted to the Committee is one of great perplexity. On every side, in fact, it presents difficulties which, in the existing state of the science, are absolutely insurmountable, notwithstanding the numerous attempts that have been made to remove them. The information collected in this report, if useful at all, is so rather negatively than positively. It shows what has been done, rather than what has been achieved. It proves that this department of the healing art has been more 'laboured than advanced.' In short, it exhibits the humiliating evidence that our professional brethren, although they often wandered in quest of Truth, have hitherto failed to find her; and that the great subject, in point of fact, remains precisely where it was in the time of Hippocrates, whose wonderful sagacity induced him to declare, that malignant diseases, by whatever name they may be known, or whatever organ they may attack, never forgive, but that they are always incurable by the knife and escharotics, and sooner or later destroy their victim.

"Much of the perplexity here alluded to, grows out of the difficulty which attends the diagnosis of malignant diseases and malignant tumours. Few men, whatever may be the amount of their science, experience, and tact, are able at all times, or in all cases, to discriminate, with positive certainty, between these affections and those called non-malignant, benign, or innocuous; while the great majority find themselves utterly bewildered at every step of the inquiry. It is not difficult, therefore, to account for the errors which are constantly committed in practice, and to explain the reason why a tumour or disease which one surgeon regards as malignant, should be considered as benign by another, and *vice versâ*. The daily experience of medical men, and the records of the profession, abundantly verify the truth of these remarks. The mammary gland

has been sacrificed a thousand times for diseases supposed at the time to be cancerous, but which, upon a more careful examination, proved to be nothing but 'milk-knots,' scrofulous swellings, or chronic abscesses. A testicle, affected with sarcocele, or chronic enlargement, has frequently shared a similar fate. There is not a museum or private collection anywhere in the country that does not afford multiplied proofs of the truth of this statement.

"Another source of difficulty is, that a majority of the recorded cases of malignant diseases are deficient in necessary details; thus rendering it impossible to use them for statistical purposes. This remark applies both to our periodical literature, to our systematic treatises on surgery, and to our monographs on cancerous affections. As a proof of the truth of this remark, I may here state that one of the most interesting, and, in other respects, valuable works of the present day, the recent production of Dr. Bennet, Professor of Medicine in the University of Edinburgh—on cancerous and cancroid growths—hardly contains a solitary case available to our present inquiry. While it describes with great minuteness the histological characters of carcinomatous and cancroid diseases, as they appear in different tissues and organs of the body, it generally takes no other notice of the patient after operation than to say that he was discharged cured at such a time; meaning of course, merely that his wound had healed, and not that he had been permanently cured of his cancer, a circumstance of which no operator can justly judge in so short a period.

"It is for those reasons, that the whole subject of operation for malignant diseases must be investigated *de novo*, before we can hope to arrive at any satisfactory conclusions respecting it. The next quarter of a century will, if practitioners are true to themselves, and to their profession, definitively settle this long agitated, important, and momentous question. Let every description of cases be subjected to the knife and to escharotics; let every circumstance, even of the most trifling character, regarding them, be faithfully recorded; let the morbid structure be carefully examined with the microscope; and, finally, let the patient be diligently watched with a view to his ultimate fate; and a thousand such cases, brought together and analyzed, will forever put the matter at rest. All conjecture will then cease, and truth will stand forth, like a beacon light, to guide and direct the practitioner in the true path of science."

The second part of the report presents a series of general observations on cancer, in relation to the results of operations, embracing facts, and statistical tables contributed by distinguished American surgeons, and gleaned from American and European authors; while the third part of the report treats of cancer of particular organs, in the same relation, embracing the views as well of the most ancient authorities, as of the more recent authors and practitioners of America, England, France, Germany, Holland, Denmark, and Italy; more especially in reference to cancer of the mammæ.

Admitting the correctness of Dr. Gross's definition of a malignant disease, it must be evident that the question in regard to the propriety of its extirpation by a surgical operation, is limited to this: How far shall we be able, by the removal of the diseased part, to prolong the patient's life; and secure to him, for a shorter or longer period, an interval of comfortable existence? The idea of effecting by means of a surgical operation an entire eradication of the disease is precluded by the very terms of the definition.

"A malignant disease is," according to Dr. Gross, "one which, whatever may be its origin, situation, or structure, has a disposition, sooner or later, to destroy, not only the part which it occupies, but also the system at large, and, consequently, as a necessary corollary, the life of the patient. In other words, all its tendencies are to mischief and disorganization. It never forgives or relents; it never disappears spontaneously; and it is never cured by medication, not even by excision, except, perhaps, in very rare cases."

In collecting, collating, and arranging in a methodical form the facts and observations embraced in the second and third parts of this report, Dr. Gross

has done a good work. The practical surgeon will here meet with much that will prove valuable in assisting him to form a decision as to the propriety of an operation in cases of disease having a malignant aspect, and which he could not otherwise have obtained without laborious research amid many books, some of them not easy of access to all, and through the pages of the professional journals, both foreign and domestic.

To understand the entire scope and value of the report under consideration, it must be attentively perused as a whole; no clear idea of it can be conveyed by an abstract, nor yet by an occasional quotation from its different sections. As in all investigations of the nature of that undertaken by Dr. Gross, the questions involved in which must be solved by testimony derived solely from experience and observation, the amount and character of the evidence adduced is of primary importance; consequently, to judge of its relevance and conclusiveness, it must be examined in detail. We close, therefore, our brief notice of the report of Dr. Gross, by recommending it to the careful consideration of American surgeons, merely appending the general conclusions at which its author has arrived.

"From the facts and statements which have now been presented," he remarks, "embracing the opinions of many of the most intelligent, experienced, and distinguished practitioners in different ages, and in different parts of the world, the following conclusions may be legitimately deduced:—

"*First.* That cancerous affections, particularly those of the mammary gland, have always, with a few rare exceptions, been regarded by practitioners as incurable by the knife and escharotics. This opinion, commencing with Hippocrates, the father of medicine, has prevailed from the earliest records of the profession to the present moment. Nature never cures a disease of this kind, nor can this be effected by any medicine or internal remedies known to the profession.

"*Second.* That excision, however early and thoroughly executed, is nearly always, in genuine cancer, followed by a relapse, at a period varying from a few weeks to several months from the time of the operation.

"*Third.* That nearly all practitioners, from the time of Hippocrates to the present day, have been and are still averse to any operation for the removal of cancerous tumours after the establishment of ulceration, rapid growth, firm adhesions, organic change in the skin, lymphatic invasion, the cancerous dyscrasy, or serious constitutional derangement; on the ground that, if had recourse to under these circumstances, the malady almost inevitably recurs in a very short time, and frequently destroys the patient more rapidly than when it is permitted to pursue its own course.

"*Fourth.* That in all cases of *acute* carcinoma, or, in other words, in all cases of this disease attended with very rapid development and great bulk of the tumour, extirpation is improper and unjustifiable, inasmuch as it will only tend to expedite the fatal result, which, under such circumstances, always takes place in a very short time.

"*Fifth.* That all operations performed for the removal of encephaloid cancer and its different varieties, are more certainly followed by rapid relapse than operations performed upon scirrhus or hard cancer.

"*Sixth.* That in nearly all operations for cancerous diseases hitherto reported, the history has been imperfectly presented, being deficient in the details which are necessary to a complete and thorough understanding of the subject in each case. This remark is particularly true in reference to the diagnosis of the malady, the minute examination of the morbid structure, and the history of the case after the operation, as to the period of relapse, the time and nature of the patient's death, and the result of the *post-mortem* examination.

"*Seventh.* The cancerous affections of the lip and skin, now usually described under the name of cancroid diseases, are less liable to relapse after extirpation than genuine cancerous maladies, or those which are characterized by the existence of the true cancer-cell and cancer-juice.

"*Eighth.* That although practitioners have always been aware, from the earliest professional records, of the great liability of cancer to relapse after extirpation, a great majority of them have always been, and still are, in favour of operating in the early stage of the disease, especially in scirrhus, before the tumour has made much progress, or before there is any disease of the lymphatic ganglions, or evidence of the cancerous cachexy.

"*Ninth.* That many cases of tumours, especially tumours of the breast and testicle, supposed to be cancerous, are in reality not cancerous, but of a benign character; and, consequently, readily curable by ablation, whether effected by the knife or by escharotics. It is to this circumstance that we must ascribe the astonishing success which is said to have attended the practice of Hill, of Scotland, Nooth, of England, and Flajani, of Italy.

"*Tenth.* That all operators insist upon the most thorough excision possible; removing not merely the diseased mass, but also a portion of the surrounding and healthy tissues, as well as all enlarged and indurated ganglions.

"*Eleventh.* That the practice has always prevailed, and still obtains, to save, if possible, a sufficient amount of healthy integument to cover the wound; and to unite, if possible, the wound by the first intention; on the ground that these precautions will tend much to retard, if not to prevent, recurrence of the disease.

"*Twelfth.* That much stress is laid by writers upon a properly regulated diet, and attention to the bowels and secretions after operation, as a means of retarding and preventing relapse.

"*Thirteenth.* That there is no remedy, medicine, or method of treatment, which has the power, so far as we are enabled to judge of its virtues, of preventing the reproduction of the morbid action after operation, no matter how early or how thoroughly it may be performed.

"*Fourteenth.* That life has occasionally been prolonged, and even saved, by operation after relapse, as in some of the remarkable cases mentioned in a previous part of this report; but that, as a general rule, such a procedure is as incompetent to effect a permanent cure as a first extirpation.

"The following points may be considered as of an unsettled character; at all events, opinion respecting them is much divided, and farther observation is necessary before they can be positively determined, either affirmatively or negatively.

"*First.* Excision is of doubtful propriety in all cases in which the disease is of hereditary origin, or where it occurs in several members of the same family.

"*Second.* It is doubtful whether an operation should be performed when the patient is very young and the disease is of rapid growth. There is reason to believe that surgical interference, in such a case, will only expedite the fatal issue, which is generally inevitable.

"*Third.* It is problematical whether an operation should be performed when the disease is attended by suppression of the menses, or by great irregularity of this discharge.

"*Fourth.* Not a few surgeons regard a resort to the knife as of questionable efficacy where there is a quickened state of the pulse, occasioned by the local irritation.

"*Fifth.* There appears to be no general agreement among surgeons as to whether extirpation is proper when there are two or more coexistent and accessible cancerous tumours.

"*Sixth.* It is supposed, but the fact is not established, that excision of carcinomatous tumours only tends to hasten the patient's death.

"*Seventh.* It is doubtful whether, as has been asserted by different surgeons, the prospect of a permanent cure is greater, all other things being equal, after an operation on an old cancer, than after an operation on a cancer of recent standing.

"*Eighth.* It has been stated by writers of great respectability, among others by Dr. Macfarlane, of Glasgow, that in robust women of sanguine temperament the reappearance of cancerous disease, and its subsequent progress, are

more rapid after operation than in nervous or lymphatic persons; an assumption demanding verification.

"*Ninth.* It requires to be proved whether excision ought to be performed in the ulcerated stage of malignant disease, as a means of prolonging life and of procuring comparative relief from suffering."

Only one of the eight committees appointed to report on the epidemic diseases of the different sections of the United States, was prepared to present a report at the last session of the Association; namely, that having in charge the report on the diseases of Tennessee and Kentucky.

The report is drawn up by Dr. W. L. Sutton, of Georgetown, Kentucky, the chairman of the committee, and it does him great credit for its clearness and methodical arrangement. From the materials derived from his own field of observation, and such as were furnished him by his colleagues and others, Dr. Sutton has presented a very interesting view of the topography and meteorology of different parts of the section of country embraced in his report, and of the more important of the diseases that prevailed there during the past year, with the treatment pursued in each by different physicians and in different localities. The account given of the several diseases is followed by a table showing the liability to them of different ages, sexes, and colours, as well as the mortality, and the average duration of treatment.

The report comprises much of an interesting and instructive character. We can at present notice only the account it contains of "An Anomalous Form of Fever, which prevailed at Memphis, Tennessee, late in the Fall of 1852."

The cases of this fever were observed at a time when scattering cases of cholera were occurring, and the reporter suggests whether they may not have been produced by the commingled influence of the malarious and choleraic poisons.

The disease made its appearance during the first and second weeks of November, being the week before and the week after the first frost of autumn.

"Its early cessation after the commencement of cold weather," it is remarked, "would seem to indicate its connection with *malaria;* but still it differed, in the malignity of its symptoms, from the well-marked cases of remittent fever, prevailing at the same time.

"The attack, in most of the cases, was not preceded by any marked indisposition. Chilly sensations, or a well-marked cold stage, of short duration, ushered in the disease. The reaction which followed was attended by intense heat of the surface, eyes more or less injected, circumscribed flushing of the cheeks, pain in the back, headache, pulse ranging in different cases from 90 to 120 beats in the minute, and continuing throughout the entire course of the attack, feeble and unresisting; the tongue at the commencement showed little evidence of departure from a normal appearance, but soon began to exhibit a line of dry and elevated papillæ, extending back along its centre, which continued to widen, of a dark brown colour, exhibiting a notable contrast with the more or less smooth and red tip and edges of that organ. The thirst for cold drinks was intense. There was tenderness on pressure over the epigastrium. Nausea, and frequent vomiting of pale green fluids were troublesome symptoms. The bowels were not moved except by medicine, when the dejections were quite fluid at first, and of a pale green colour. The urinary secretion was small in quantity, and highly coloured, giving off a strong ammoniacal odour. Hemorrhage from the nose was common; in a few it occurred both from the nose and bowels; and in one case, blood flowed from these, and likewise from the uterus, in considerable quantity two weeks after the last menstrual period. Sleeplessness and jactitation were absent in no instance. Little or no delirium present, intellect clear. No eruptions discoverable. Great prostration of the vital powers present in all. The duration of the fever was from five to fifteen days, most of the cases being convalescent during the first week. It had, like those called continued,

its morning periods of partial remission, but they were not the clearly-marked remissions of the paroxysmal fevers prevailing at the time.

"Taking into consideration the unpromising symptoms just detailed, the disease yielded more readily to treatment than would appear probable." "The remedy which in our hands appeared to exercise the greatest influence over the symptoms was *mercury*. After the bowels were evacuated, our reliance was placed on small doses of calomel and opium, repeated as often as the urgency of the symptoms in different cases required, and steadily persevered in until the disease yielded, which always took place on the first appearance of the constitutional effects of the medicine. As adjuvants, we employed local depletion and counter-irritants to the epigastrium. Iced lemonade, or pure iced water, or powdered ice, were freely allowed, and contributed not a little, we feel assured, in allaying gastric distress, and adding to the comforts of the sick. The great and infallible remedy in the treatment of periodic fevers, did not succeed in the disease under notice, though a full and fair trial was made with it in several instances. Even as a tonic, after the subsidence of the disease, quinia did not appear to answer so well as the mineral acids.

"The quantity of blood lost by some of the patients in this disease, and the manner in which the apparently prostrated vital energies sustained themselves under the loss, were truly astonishing. So far from being really injurious, we believe that the hemorrhage from the bowels was of signal service in relieving the congested capillaries of the intestinal mucous membrane, as no death occurred where this condition was present. To restrain the hemorrhage within the bounds requisite for the safety of the patient, as well as to impart the salutary influence which it is generally believed to exert over the diseases of the mucous membrane, the spirits of turpentine was administered in small and repeated doses, with most signal advantage in the cases we are considering.

"It is a fact worthy of note that, so far as we have been enabled to learn the subsequent history of these cases, not an instance of relapse has supervened since recovery, now four months after the attack."

The report of Dr. Sutton is followed by that of Dr. Charles D. Meigs, of Philadelphia, on "Acute and Chronic Diseases of the Neck of the Uterus."

This admirable report is not presented by its author as a complete monograph on the diseases of which it treats. It is perhaps, in many points, even more valuable than if such a character had been attempted to be imparted to it; presenting as it does, distinctly, the clinical observations, in respect to some of the more frequent of the affections of the cervix uteri, of one who has devoted years to their careful study, in a wider and more favourable field for their investigation than is furnished to the generality of practitioners. The report is confined simply to a plain statement of the subjects embraced in it, as they have appeared to its author, with the addition of such explanations, illustrations, and advices concerning treatment, derived from his personal experience, as have appeared to him may prove useful in aid of clinical practice in an important and extensive department of medical and surgical treatment.

The descriptions and explanations—the views and instructions of the reporter—are illustrated by the details of cases that have fallen under his own immediate notice, the whole being accompanied by very faithful coloured drawings from nature.

To one who will carefully study the report of Dr. Meigs, it is calculated to convey more precise and definite views of the subjects of which it treats, than most of the treatises formally devoted to their consideration; and at the same time to furnish him with useful practical hints, in reference to the exploration, diagnosis, and management of a class of diseases in which he is liable almost daily to be consulted, derived from the ample experience and matured observation of its distinguished author.

The entire report is a very favourable example of the mode in which the

results of individual experience may be rendered immediately available for the instruction of every member of the profession—in which the personal knowledge of one may be made the common property of all.

For his present contribution we return to Dr. Meigs our sincere thanks.

We fully concur in the earnest desire, expressed by him in the close of the report, that the class of cases therein treated of, may receive a greater share of attention from his medical brethren; so that they may less frequently than heretofore be permitted to accumulate in the large cities and towns, or in the hands of specialists. And we are convinced that the present very able report will contribute much to the realization of this desirable result.

With Dr. Meigs, we believe that, inasmuch

"As such disorders require no greater amount of particular information or dexterity than other surgical and constitutional maladies, it is within the ability, and is the duty of the brethren generally, to conduct them safely and gently to a satisfactory cure. In our opinion, it would be much more creditable that such skill and discrimination should belong generally to the whole profession, than for one or two individuals in a district, or in a great metropolis, as London or Paris, to acquire a notoriety which, to say the least of it, is scarcely enviable; since, among the humiliating services that physicians and surgeons are by their vocation obliged to render to the distressed, none can be more revolting to the sensitive mind than these. It might, perhaps, with consoling truth, be added, that few professional ministrations turn aside, with greater certainty and celerity, the attacks of disease, or arrest the shafts aimed at the existence of our clients."

It is not our intention to attempt an analysis of the report of Dr. Meigs. Its character is such, indeed, as to prevent this being done in any satisfactory manner. The information it imparts is rather in the form of demonstration than didactic or argumentative, and they who desire to profit by that information must study the entire text of its author, and the details of the cases presented by him, in connection with the pictorial illustrations by which they are accompanied. In no other way can the entire bearing and full value of his clinical remarks be correctly appreciated.

The report commences with a few pertinent remarks on the importance and propriety of ocular inspection by means of the metroscope, in order to the formation of a correct diagnosis of the several diseases to which the cervix uteri is liable.

Dr. Meigs prefers the simple metroscope of Recamier, which appears well adapted to bring into view the different portions of the uterine neck, and to facilitate the application of remedies directly to the seat of disease.

Allusion is made to the reaction of the productive organs upon the other members of the animal economy of the female; and the physiological hypertrophy to which the uterus is repeatedly subjected during the period of childbearing, is pointed out as a predisposing cause of many of its diseases.

Some interesting demonstrations are also given of the normal size, form, and position of the womb, to serve as a standard of comparison by which to judge of its abnormal changes in these respects.

The first of the diseases of the uterine neck noticed in the report before us is inflammation. Adverting to the extreme frequency of leucorrhœa in the female, Dr. Meigs remarks:—

"Where the leucorrhœa consists only of vaginal products, it may safely be assumed that such leucorrhœa is of very little consequence as to the woman's general health. We speak here of the moderate cases. Indeed, affections of the vagina may, for the most part, be considered to interest very little the female constitution. Such a statement as this might excite surprise in

those who are accustomed to hear of the very debilitating effects of fluor albus; and it becomes necessary to qualify the statement by showing that, in those cases where the health has appeared greatly to suffer, the essential malady is not in the vagina, but in the neck of the uterus itself.

"While our own observation convinces us that profuse vaginal secretion is rarely met with in practice, we are equally convinced that some of the patients are rendered too moist by excessive activity of Duverney's glands, and that the most mischievous of leucorrhœal evacuations is that which comes from the canal of the cervix uteri.

"The muciparous glands of the vagina furnish either a thin watery mucus, or one of a creamy consistence, which, in other instances, is almost butyraceous, or concrete. The excretion from the follicles and glands of the canal of the neck is always gluey or albuminous, and resembles fresh white of eggs; and when the patient, in describing the disorder, informs us that she discovers a slimy mucus, and especially if it appears at intervals of once a day or oftener, we may take for granted that she labours under inflammation of the neck of the womb. There is no apparatus in the vagina itself for the secretion of this albumen, but the abundant follicles of the canal of the cervix are devoted solely to such production; when the cervix is chronically inflamed, that production is much increased, to that degree, indeed, as to impart a character of sliminess to the discharges, and make it resemble *albumen ovi*. It very often happens, to observe this transparent viscid mucus to be wholly unaccompanied by any vaginal excretion; the substance coming away from the os uteri, and escaping upon the napkins, without the least admixture. In using the metroscope, the same albuminous matter is observed oozing forth from the orifice of the womb only, and so tenacious that it cannot be wiped away with the sponge."

According to Dr. Meigs, therefore, "the albuminous leucorrhœa is a sign of inflammation of the cervix, in which is included the canal, with its copious muciparous apparatus," and the case is to be treated accordingly.

The so-called raspberry coloured and other forms of inflammation, with simple hypertrophy of the neck of the uterus, are well described and clearly illustrated. Most of these inflammations and their accidents the reporter avers may be cured, and that speedily, by means of antiphlogistic contacts of the solid nitrate of silver, few of them being attended with the slightest ulceration.

"It is a common opinion," Dr. Meigs remarks, "and it is generally agreed to say so, that these affections are ulcerations of the womb, and there are people who seem never to fail to discover an ulcer upon making an examination with the speculum matricis. An immense experience in a populous metropolis —an experience greatly increased by the resort of numerous invalids from the country, and from the different United States, enables us, with confidence, to declare that an ulceration of the womb is among the rarest of disorders. We repeat the expression of our opinion, that these disorders and *framboisée* inflammations and hypertrophies of the cervix, have been misinterpreted, and accounted as ulcerations, which they are not, the superficies being covered with a delicate epithelium, yet so very delicate as readily to give way and suffer abrasion under improvident, unskilful manipulation with the tube or the sponge."

Dr. Meigs speaks of contacts of the nitrate of silver as antiphlogistic contacts; he thus explains his meaning in the use of that phraseology:—

"It is undeniable that a pencil of nitrate of silver applied to a soft, moist, living tissue, and held long in contact with it, will disorganize the tissue, and so prove to be a destructive contact. It is equally undeniable that a contact may be effected with such rapidity and lightness as to prove ineffective or indifferent, while there is another mode or force which does resolve inflammation with great certainty; and this is the antiphlogistic contact above spoken of. We feel, therefore, warranted to speak of such use of the nitrate of silver as

being either destructive or indifferent, or antiphlogistic contacts; and experience confirms the propriety of the classification; for, we meet with numerous examples of treatment that conclusively prove it is not the mere treatment by escharotics that is so successful, but the use of them in such a way as to provide for their due operation as antiphlogistics and not as destructives."

Retroversion of the uterus is noticed by Dr. Meigs, from the belief that this malposition of the organ so far interests the state of the cervix, as to bring it within the scope of his inquiries into the acute and chronic affections of the latter.

He has long "been fully convinced," he remarks, "that retroversion of the womb constitutes seventy-five per cent. of all cases of sexual disorders, of a gravity sufficient to require appeal to medical advice. This," he adds, "may, at first, appear to be an exaggerated estimate, but it will probably be found sustained by statistical experience."

We cannot fully subscribe to the correctness of this statement; we are persuaded, from our own observations, that retroversion of the womb is an accident of less frequent occurrence than it is asserted to be by some, and that in many cases the sufferings and other morbid symptoms usually ascribed to it, result from other and very different causes. That retroversion does frequently occur, and is occasionally productive of the most serious results, we are perfectly aware. Dr. Meigs refers to extensive hypertrophy of the womb as one of its usual consequences, as well as the rapid return of the organ to its normal size upon being returned to and retained in its proper position.

A case is given and illustrated, showing the morbid changes which are liable to occur in the texture of the neck of the uterus, followed by a few brief remarks upon these changes, especially those of the inner wall of the cervix.

Certain cases of hemorrhage from the womb are noticed, with cases and illustrations showing their dependence upon raspberry-coloured inflammation of the cervix, or "small *vivaces*, or bunches of red cellular and capillary tissue, which are either found peeping out at the plane level of a somewhat patulous os tincæ, or jutting quite forth out of and beyond it, and attached by a delicate peduncle or footstalk."

A drawing is given exhibiting a case in which many such little excrescences were observed to jut forth of the opened os tincæ, looking not unlike so many very ripe red currants. In this case, it is is stated, there was hypertrophy of the womb to such a degree, as to allow the fundus to be felt quite two and a half inches higher than the plane of the superior strait.

The malignant degenerations of the texture of the cervix uteri are merely glanced at. In this connection, a case is given in which an apparently grave form of chronic disease of this part was treated with success. In this case, the reporter believes that if the disease was not actually malignant, it would have certainly become so, had it been allowed to run its own course. An interesting case of hygroma of the cervix uteri, with a firm fibrous tumour developed out of the substance of the fundus itself, while every other part of the organ retained the equable ratios of its several elementary or constituent tissues, is detailed and illustrated by a drawing.

The chief interest connected with this case is, that it shows very forcibly the importance of a cautious prognosis in all cases of uterine disease. In judging from the results of the pelvic examination, and the inquiries made at the surpubal region, one would have been led to pronounce a flattering prognosis, since no one would scarcely doubt of his ability to cure all the evident disorders of this womb, whereas a *post-mortem* examination proved that

the chief malady was entirely beyond the reach of any known therapeutic means.

Displacements of the neck of the uterus, and their proper management, are next considered, and the report closes with a brief notice of polypus of the womb, with cases and drawings in illustration.

The sudden enormous effusions, generally greatest at the menstrual periods, to which those females who are labouring under polypus of the uterus are liable, is referred to. In many cases, this hemorrhage is present some time before the polypus commences to protrude beyond the os tincæ.

"Many wombs," Dr. Meigs remarks, "are kept in a state of hyperæmia and hemorrhagical fulness by the presence and pressure of the polypus, and such cases are marked by the most violent floodings. Now, when we come to inquire diagnostically into such cases, and find, upon touching, that the os tincæ is unmodified, and the cylindrical neck unchanged, all that we can do is to infer, for we cannot know, that the hemorrhages are caused by a polypus in the cavity; whose existence, however, we can only conjecture or infer, and especially where the polypus is still so small as not greatly to magnify the womb, and make its increase perceptible to the touch in the surpubal region.

"There can scarcely be found, in the whole region of medical duties, a more difficult case of diagnosis than this. Time alone can solve the problem, and then only by protruding the mass into the cervix, or out into the vagina, whereupon all doubt is at an end."

In the report we have just noticed, the teachings of its author are all deductions of clinical experience, and are enforced by facts falling within the immediate observation of the reporter. The report which succeeds, embracing "An Inquiry into the Nature of Typhoidal Fevers, based upon a Consideration of their History and Pathology," is of a very different character. The deductions of its author, Dr. Henry F. Campbell, of Augusta, are not from his own observations, but exclusively from the recorded observations of others. This comparison is not made in disparagement of the report of Dr. Campbell, which is highly creditable to him, and replete with interest and instruction. Notwithstanding the views advanced in it are not the result of clinical investigations conducted by the author, but, as he believes, are rationally deduced from recorded facts, they are not on that account less worthy of our serious consideration, or less likely to lead to important practical results.

The space we have already occupied will preclude our examining in detail the report of Dr. Campbell. The following quotation will give a general idea of the positions assumed by the author:—

"From what has been already said in relation to the distinctive features of the two types of continued fever, typhoid and typhus, their interpretation, according to the pathology herein argued, will have been, doubtless, ere this naturally suggested. We have seen that *typhoid* fever is marked by an accelerated pulse, more or less nervous derangement, an altered condition of the blood, frequently a *mild* cutaneous eruption, diarrhœa, and meteorism. On *post-mortem* examination, we find lesions, viz. congestions and ulcerations of a peculiar character; that is, simulating those produced by experimental sections of the nerves in all those parts supplied by the *visceral* portion of the ganglionic system of nerves. On the other hand, we have seen that *typhus* fever is characterized by a somewhat more accelerated pulse, much more marked nervous derangement, the same altered condition of the blood, well-marked and always *serious alterations* in the capillary circulation of the *skin*, amounting often to actual ecchymosis, while the *post-mortem* examination shows almost entire exemption from lesion in the abdominal viscera. Thus we find that, while both diseases have all their general symptoms so exactly similar that we are forced to acknowledge their identity, and see in them what is essentially but one disease, yet typhoid fever has its principal and most prominent manifestations in the abdominal

viscera, internally; and typhus fever manifests itself in aberrations of the circulation, very analogous to those of typhoid, but occurring in the capillaries of the *cutaneous* surface.

"Now, the ganglionic pathology is the only theory by which such marked incongruities in the two forms of what, to the observation and scrutiny of every one, must ever appear as one disease, can be perfectly and satisfactorily reconciled. We cannot deny that the two are but types of the same disease; yet how incongruous and strange it is that, in certain cases (*typhoid*), diarrhœa and intestinal lesion should appear the main, the most important features; while in the other cases (*typhus*), undeniably of the *same disease*, even more grave and threatening, there should be not a trace of diarrhœa, and, on *post-mortem* examination, no intestinal lesion whatever; but, instead, serious disease and congestion of the *skin*, with subcutaneous sanguineous effusions, similar to the submembranous sanguineous effusions of the typhoid type. Indeed, from the very smallest degree of attention, must result the conclusion that, in the two cases, *the disease is one and the same*, but seated in different portions of the organism; and this conclusion will accord exactly with what we have considered the distinctive pathology of the two forms, viz. that in each type the disease is located in a different portion of the ganglionic system. There are certain portions of the system which are affected in both forms of the disease, as the ganglia supplying the heart; but, after this, the two types have entirely distinct and separate sets of ganglia, the morbid action in which gives rise to their respective manifestations.

"In *typhoid fever*, the *internal* or *visceral* isolated ganglia, such as the semilunar, etc., are the seat of the morbid action; and these, supplying mainly, we may say entirely, the abdominal viscera, and having but little connection with the other or external portions of the organism, these viscera become the seat of nearly all the morbid phenomena; while that little implication of the cutaneous surface and general nervous system, which we often observe, is entirely due to the remote and very obscure connection which their isolated ganglia may have with the nerves supplying these parts.

"Now, in the *typhus* type, the same disease or morbific agent (its exact nature we do not pretend to define) affects an entirely different set of nervous centres —a set of ganglia which, by their anatomical position, their internal and universal relations with the anterior and posterior roots of the spinal nerves, are plainly destined to preside over the capillary circulation of parts more superficial—the cutaneous surface. We have reference to the *vertebral* sympathetic ganglia; and in attributing the location of *typhus* fever to these ganglia, we have a ready and satisfactory interpretation of all its distinctive characteristics. The skin becomes congested and ecchymosed (petechial), because its circulation is dependent upon and controlled by innervation derived from these vertebral ganglia; which ganglia being the seat of abnormal action (perhaps paralysis), innervation is deficient; the cutaneous circulation is retarded; in certain places there is obstruction, with actual rupture and effusion, giving rise to petechiæ. The general (cerebro-spinal) system is more seriously involved in typhus than in typhoid fever, because the connection is more direct between the vertebral ganglia—which are the seat of typhus—and the cerebro-spinal system. In a word, then, we would locate *typhoid fever* in the *visceral* portion of the ganglionic system, and *typhus* in the *vertebral* portion."

The reports of special committees are followed by two very valuable papers. The first of these is by Dr. Alden March, of Albany, N. Y., on "Coxalgia, or Hip Disease."

This paper of Dr. March is one of deep interest. The facts adduced in it, and which appear to be very fully established and conclusive, entirely overthrow the commonly received opinions in relation to the pathological condition of the hip-joint in cases of coxalgia, and the cause of the deformity consequent upon the disease, as well as in relation to the proper treatment for the prevention and remedying of that deformity.

Dr. March shows that nearly every surgeon *assumes* that *spontaneous dis-*

location of the hip is not unfrequently the result of absorption, ulceration, or destruction of the ligaments of the joint and of the acetabulum, and of contraction of the muscles surrounding the joint. In opposition to this, the position assumed by him is, that *spontaneous dislocation* of the hip, as purely the result of morbid action, unaided by superadded violence, never takes place. And he points out a plan of treatment by which *progressive absorption* of the acetabulum and head of the bone may be arrested, before the life of the patient is endangered.

Dr. March has examined, with great care, some two hundred morbid specimens, dried and wet, of the condition of the hip-joint in cases of coxalgia, contained in over forty different anatomical and pathological museums of Europe and America; and from a study of these, as well as of patients affected with the disease, his conclusions as to its true pathology and proper management have been deduced.

"I believe," says Dr. March, "all authors describe two principal forms of morbus coxarius, or hip disease; one, in which the inflammation commences in the cartilage; and the other, when the cancellous structure of the bone is the primary seat of the affection. In either case, the result may involve all parts of the joint, and prove equally destructive. That form of it in which the cartilage is the first part attacked, is not unfrequently met with in adults; whereas the scrofulous form, the other variety, is mostly confined to children and persons under the age of puberty. The hip-joint may be subject to other forms or varieties of disease: rheumatic inflammation, interstitial absorption, porcelaneous deposit, etc. But it is believed that the changes of structure consequent upon these affections, do not often simulate or counterfeit the symptoms of dislocation. I shall, therefore, confine my remarks mostly to the subject of *ulcerative absorption*, by which such changes have resulted in the articulation as have too often been called *dislocation*."

In the following manner, the reporter explains how all the symptoms of a dislocation can be present during life, when, in reality, on making a dissection after death, the head of the bone is not found lodged on the dorsum of the ilium.

"The cartilage is absorbed, the round ligament is destroyed, and three-fourths of an inch of the upper part of the head of the bone has been carried away by ulcerative absorption. Simultaneously, the cartilage of the acetabulum is disposed of in the same way; the cotyloid ligament, at the upper and back part, is destroyed or removed from the margin of the acetabulum, and the socket is elongated or enlarged three-fourths of an inch in the upward and backward direction. By the action of the fore part of the *gluteus medius*, which lies in juxtaposition with the upper and back part of the capsular ligament, and by the *tensor vagina femoris*, when aided by the action of the *psoas magnus* and *iliacus internus muscles*, the *foot is inverted*, and the *thigh is flexed* on the *pelvis*, and strongly *adducted*, by which the *trochanter major* is made to project, and to occupy a position nearer the *anterior superior spinous process* of the ilium than in the normal condition; and by the thickening of the capsular ligament, and by effusion of serum and lymph in the cellular tissues, and in the *glutei muscles*, a prominence is observed which has been regarded as the head of the bone *lodged* on the *dorsum of the ilium*.

"By the destruction of three-fourths of an inch of the head of the bone, and by absorption and elongation of the acetabulum upward and backward to the same amount, if these two parts remain in contact, as it is contended they do, by the action of the glutei muscles, then we have an inch and a half of shortening of the limb."

The treatment of coxalgia proposed by Dr. March is extension and counter-extension by means of splints, so as to keep the limb in a state of perfect repose, and to take off all pressure from the diseased surfaces of the acetabulum

and head of the femur. A treatment which he believed was peculiar to himself, as no notice of it is to be found in any of our systems of surgery. Its rationale is thus explained:—

"In the advanced stage of the disease, the cartilages of the acetabulum and of the head of the bone are destroyed; the carious and loose spongy bony tissue is covered with coagulated lymph, and this, adhering to the surfaces of the bones, becomes highly vascular. Now, if these two surfaces, thus covered with organized or organizable matter, could be kept in easy apposition and at rest, without too much pressure on the one hand, and on the other, without exerting too much separating or sundering force, in many instances a bony anchylosis would be the result. By the pressure of the muscles that act on the head of the bone and acetabulum, in addition to ulcerative absorption, we get progressive absorption, and hence the great destruction of the osseous parts of the joint." "In the early stage of the disease, before shortening or distortion of the limb takes place, it will be important to resort to the use of the long splint to maintain the joint in a state of rest, that the inflammation may subside."

Dr. March remarks that the long splint of Dr. Physick was calculated to fulfil a part of the above indications—relief from pressure of the upper part of the head of the bone, and the upper and marginal part of the acetabulum.

"But," he adds, "in fixing it to the whole length of the limb, and to the trunk nearly as high up as the axilla, there must necessarily be a considerable amount of pressure on the outer face of the trochanter major, the tendency of which would be to produce absorption of the head of the bone occupied by the attachment of the ligamentum teres, and of the deep part of the acetabulum, so that the diminished head and neck of the bone might be thrust through into the cavity of the pelvis, which I have actually seen."

Dr. March gives a description and drawing of a form of splint which he believes to be adapted to fulfil the indications had in view in the treatment laid down by him, without any of the disadvantages just referred to as liable to result from the ordinary long splint.

The entire paper of Dr. March is deserving of a close and candid examination on the part of every practitioner. We believe that the facts and reasoning it adduces are calculated materially to modify the views almost universally maintained in regard to the pathology of coxalgia, or hip disease, and to suggest a plan of treatment better adapted than any now in general use to prevent serious deformity and lameness, if not to preserve the movements of the affected limb.

The second paper is by Dr. Gurdon Buck, of New York city. It is on "The Surgical Treatment of Morbid Growths within the Larynx, illustrated by an Original Case and Statistical Observations, tending to elucidate their Nature and Forms." It is a highly valuable contribution, throwing much light upon an affection which, though not of very frequent occurrence, is insidious in its commencement, often obscure throughout its progress and in its diagnosis, and most distressing in its symptoms, so soon as the morbid growth in the larynx has acquired any size.

The analysis which Dr. Buck presents of the cases on record of this disease furnish all the leading facts, so far as they have been observed and noted, in relation to the sex and age most liable to its occurrence; the causes that may be suspected to produce it; its distinctive phenomena, duration, and modes of termination.

The result of the disease, when left to itself, is almost necessarily fatal. In only one of the cases collected by Dr. Buck were the efforts of nature competent to detach and expel the foreign growth, the expulsion being followed by recovery. In another case, several portions of the tumour were expelled

by coughing, with temporary relief to the respiration and voice. In a third case, the tumour was found detached and free in the trachea; but suffocation took place before it could be expelled. "In the progress of the disease," Dr. Buck remarks, "when once suffocative paroxysms have become established, the danger of suffocation is imminent, and the catastrophe may occur at any moment."

Surgical aid appears to be our only resource for the relief or cure of this formidable disease. For observations on the particular mode of applying it, and the probable success that may be expected to follow it, our readers may consult with profit the interesting paper of Dr. Buck.

The next article is a short paper by Dr. Henry F. Campbell, of Georgia, in which that gentleman lays claim to priority in the enunciation of the doctrine that there exists a reflex relationship between the sympathetic and the cerebro-spinal systems of nerves, which has been recently claimed by Dr. Bernard, of Paris, as an observation entirely new and original with him. Dr. Campbell has shown that, at least, priority of publication is with him.

The two essays to which prizes, of one hundred dollars each, were awarded by the Association, at its recent session, complete the contents of the present volume of *Transactions.*

The first of these prize essays is "On the Surgical Treatment of Certain Fibrous Tumours of the Uterus, heretofore considered beyond the Resources of Art." By Dr. Washington L. Atlee, of Philadelphia.

The essay consists, in great part, of the detailed histories of fourteen cases of the extraction of tumours from the cavity of the uterus, or from within the substance of its parietes, by operations of certainly a very bold character. In the majority of these cases, the extraction or destruction of the tumour was effected by introducing the knife within the cavity of the womb, and separating by it the attachments of the morbid growth to the inner surface of the organ, or when it was imbedded in its walls, freely incising, from within, the uterine parietes, and turning out with the finger the tumour from its bed; or, if this could not be effected, trusting its expulsion to the contraction of the uterine fibres of the uterus, under the specific influence of ergot.

The result of eight of the cases reported in the essay is set down as in entire recovery. In one, death took place soon after the operation, from pneumonia; in another, from erysipelas of the abdominal parietes. In this instance an ineffectual attempt had been made to remove the tumour by gastrotomy, and then its removal *per vias naturales* was undertaken; during the progress of which operation the fatal attack of erysipelas combined with peritonitis, occurred. In a third case, the patient perished from anæmia; in a fourth, from disease of the heart; in a fifth, from peritonitis, the tumour proving, in this instance, to be of a malignant nature; while in a sixth case, under treatment at the time the essay was completed, fears were entertained that the uterine disease was also of a malignant form.

How far the fatal result, in any or all of these cases, was directly or indirectly attributable to the operation, it is not our intention here to inquire, though in determining upon its propriety and expediency the inquiry is one of some importance.

We confess that the result of the cases presented by Dr. Atlee, favourable as it unquestionably appears to be at first view, does not, after a careful examination of the history of each case, as given by that gentleman, impress us strongly in favour of the operation described.

There is little doubt that, in cases where we could be quite certain as to the true character, position, and state of the uterine tumour, the operation, as

practised by Dr. Atlee, may be successful, and prove the means of securing the comfort, or even prolonging the life of the patient; that is, provided always the state of her general health, and her freedom from other organic diseases are such, also, as to warrant its performance. But, when we consider how uncertain must be our diagnosis in most cases; how many circumstances there are in connection with tumours attached to the inner surface of the uterus, and more especially with those developed within its substance, all of vital importance in deciding upon the propriety, feasibility, and probable success of any operation for their removal, of which circumstances we have no means of forming any positive judgment; it must be evident that the propriety of all such operations, and their ultimate result, so far as the patient is concerned, must always be questions involved in much doubt and uncertainty.

Dr. Atlee admits the impossibility of enucleating tumours imbedded in the substance of the uterus immediately beneath its peritoneal covering, when they have been the seat of inflammation, or undergone degeneration; "as, in the first case, adhesions will be formed between it and the cyst, and, in the latter case, the cellular structure of the uniting membrane will be destroyed." Now, is not the same thing true in reference to what Dr. Atlee denominates *intra-mural* uterine tumours, or those developed within the substance of the uterus? Have we any certain means of determining when such change in their condition has or has not taken place?

We have no certain guide to lead us to a correct diagnosis, in the case of tumours hidden entirely from our view, as to their simply fibrous and benign, or their malignant character and tendency. A severe and dangerous operation for the removal of a tumour of a decidedly malignant character should not be countenanced. Even if the tumour has merely the tendency to assume a malignant form, as Dr. Atlee presumes may be the case with some of the fibrous tumours of the uterus, we have strong doubts as to the propriety of such an operation for its removal, however early in the disease it may be performed, and even though we could be certain that by it every portion of the diseased structure may be removed. The history of malignant growths presents the melancholy fact that a return of the disease after an operation, sooner or later, almost invariably takes place; and there are too many reasons for believing that the operation itself has a tendency to accelerate the rapidity of the malignant degeneration, in the tissues surrounding that in which it had already made its appearance.

Dr. Atlee, himself, who we have a right to believe has attentively and cautiously studied the subject of fibrous tumours of the uterus, and who from frequently operating in such cases must have acquired very considerable tact in their diagnosis, admits that he has himself been misled as to their character and the certain success of an operation instituted for their removal.

In the fourth case detailed in the essay before us, he states that—

"Apart from its history, I should have considered the tumour to be either in the cavity of the uterus, or in its walls; but viewing it in that connection, and respecting the opinions of those gentlemen who had examined the case before, I was willing to believe it to be extra-uterine, consisting of either the right ovary, which had undergone fibrous degeneration, or a pedunculated fibrous tumour of the uterus itself, and that its extirpation by gastrotomy was possible."

The operation was accordingly performed; but upon exposing the uterus, it was ascertained that the removal of the tumour could not, with propriety, be attempted. The wound was accordingly closed, and the patient rapidly recovered. Subsequently, it was concluded, "that the tumour existed within

the cavity of the uterus, attached extensively to its interior surface, and that it was possible to remove it through the natural passage." This attempt was, however, equally unsuccessful. The patient died of erysipelas, with peritonitis.

The *post-mortem* examination "disclosed a fibrous tumour in the interior of the uterus, sealed firmly to it at every point, except a space about three-quarters of an inch in diameter, communicating with the mouth of the womb." "The tumour itself had evidently degenerated. Large masses of it had softened down into a brain-like substance, while other parts retained the fibrous character."

Now here is a case of uterine disease entirely beyond the reach of art—in which the diagnosis was marked by so much uncertainty that the abdomen was first opened, and when it was found that the tumour could not be removed by operating from the external surface of the uterus, the edges of the os tincæ were "slightly nicked in several directions," and large quantities of ergot given, in hopes that the uterus would throw off a mass which it was discovered, after the death of the patient, could not have been got rid of by any means short of ablation of the entire organ.

In the fourteenth case, again, the diagnosis is stated to have been quite obscure. So far as it could be made out, the tumour appeared to be fibrous—most probably, extra-uterine. Gastrotomy was performed, when it was found that the tumour could not be removed. After the patient's recovery from this operation, an effort was made to destroy the tumour by cutting through the posterior walls of the vagina and into the substance of the morbid growth. A process of decomposition was in this manner induced, and, after several weeks, the tumour softened and diminished very much in size, and the general health of the patient improved. Some weeks subsequently, "the discharge having ceased, and all operative measures having been carried as far as it was deemed safe, she went to the country for the summer. On her return in the autumn, the abdomen was found to be "still large," but, in all other respects, we are informed, the patient enjoyed good health.

We adduce these two cases not for the purpose of discussing the propriety of the surgical measures instituted in either—but to show how difficult it occasionally is, in cases of uterine tumours, to arrive at so clear a diagnosis as shall indicate the kind of operation adapted to their removal, the propriety of resorting to it, and the probability of its success.

In the hands of the skilful and experienced surgeon—prepared for every emergency, and prompt to overcome every unforeseen difficulty that may present itself—the operation, described by Dr. Atlee in the present essay, may, perhaps, prove successful in a certain limited class of cases of uterine tumours; but, in the hands of the rash and inexperienced, of the mere operator, we very much fear that they will more often result in disaster than in benefit to the unfortunate patient.

The subject of the second of the prize essays is "The Cell; its Physiology, Pathology, and Philosophy, as deduced from Original Investigations" by its author, Dr. Waldo J. Burnett, of Boston, Mass.

We can do little else than give the title of this essay. The subjects embraced in it present so extensive a field of inquiry, and involve so many points of a debatable character, in relation to which a difference of opinion must continue to exist until they shall become definitely settled by repeated as well as more extended and diversified series of observations, that, were we to enter into an examination of the views advanced by Dr. Burnett, we should

be obliged to extend the present review, already too long, beyond all reasonable limits.

The essay will be found a very valuable contribution towards the elucidation of the physiology of cell-formation and its relation to organization, mainly deduced from original investigations.

As an original production, its value will depend mainly upon the accuracy of the observations instituted by its author. On this, we are not prepared to offer any opinion. No one is competent to decide upon the fidelity with which Dr. Burnett has delineated the several forms and mutations of organic cells, who has not, with microscope in hand, carefully studied the subject for himself, or who has not, at least, repeated the same series of observations as those from which the deductions of that gentleman are derived.

As a monograph on the general subject of cell development and function, the essay is, to a certain extent, instructive. Deficient, it is true, in regard to some of the more recent facts and doctrines, but, upon the whole, ably and faithfully drawn up. Written, as the author admits, in a prefatory note, during the year 1851, "the many advances the science of structure has since made, has thrown so much light on some obscure points, that the parts relating to them ought almost to be now rewritten, to be up with the times." This deficiency he has, however, sought, at least in part, to make good, by inserting as much new matter as well could be, while the sheets were passing through the press.

We have many reasons to regret that the author was under the necessity of making the statement just alluded to, candid and honourable as it is on his part.

It will deter many, we fear, from the attentive study of the essay, under the impression that they will not derive from it complete information in relation to the subject of which it treats; while it may, perhaps, lead to the supposition that the Association has been misled in conferring one of its annual prizes on a dissertation which is behind the knowledge of the day.

D. F. C.

ART. IX.—*Practical Observations on Aural Surgery, and the Nature and Treatment of Diseases of the Ear.* With Illustrations. By WILLIAM R. WILDE, Surgeon to St. Mark's Ophthalmic Hospital, Dublin, &c. &c. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 475.

WE have rarely had the pleasure of inviting the attention of our readers to a publication which will be more welcome to the profession than this. It treats of a subject extremely little known to the mass of practitioners, and which has been tacitly relinquished by them to quackery and ignorance as a choice preserve in which these may hunt their game. The reason of this is doubtless to be found in the complex anatomical structure of the ear, and the concealed situation of its most important parts; whereby a thorough physical examination of the organ during life, and a satisfactory *post-mortem* investigation are rendered extremely difficult to all, saving to the few whose nice observation and patient and laborious research are neither to be baffled by obscurities nor wearied by obstacles.

Mr. Wilde possesses in an eminent degree the qualities necessary to the

successful prosecution of aural surgery. We read in a recent number of an able contemporary, the *London Medical Times and Gazette*, that he "was the pupil of the late celebrated Abraham Colles, Professor of Surgery in the College of Surgeons in Ireland, who made use of him to carry out numerous pathological investigations in which that great man was constantly engaged. He was then known no less for the patient industry and success with which he conducted researches generally dry and uninteresting to young minds, than for the extraordinary energy and activity which he brought to bear upon every topic connected with the advancement of his studies, or with those branches of the science of medicine which fell in his way." Thus prepared by previous training, he devoted himself from a very early period of his professional life to the study of diseases of the Eye and Ear. He instituted St. Mark's Hospital, in Dublin, for the treatment of these affections, and now, about ten years since its commencement, this establishment is, we are told by Dr. Hewson, one of his pupils, and the American editor of his book, "one of the largest and best conducted of the kind in Great Britain."

Mr. Wilde prefaces the special consideration of Aural diseases with a chapter on the history of these affections, in which the chief writings and recommendations upon the subject are enumerated according to their dates, and briefly criticized. This portion of the volume is interesting and instructive on many accounts; but we will not dwell upon it, trusting that our readers will possess themselves of the book and examine this chapter personally. The first special treatise on Aural affections which Mr. Wilde has been able to discover is that of Heurnius Mercurialis, *De Oculorum et Aurium Affectibus Prælectiones*, published at Frankfort, in 1584. And the most notable contributors to this branch of pathology since that date are, we gather, Du Verney, in 1683; M. Guyot, a postmaster of Versailles, who, in 1724, proposed to the French Academy to inject the Eustachian tube by means of a catheter introduced through the mouth; Archibald Cleland, an English army surgeon, who, in 1741, proposed a speculum for examining the ear, to which Mr. Wilde thinks may be traced the subsequent *inspector auris* of Deleau, Itard, Buchanan, and Kramer, and to whom is due the merit of suggesting that the Eustachian catheter should be introduced through the *nostril;* Mr. Watham, who, in 1755, published an essay in the *Philosophical Transactions*, proving that the Eustachian tube and the middle ear can be entered and washed out by means of a catheter introduced by the nose into the tube; Degravers and Cooper, to whom we are indebted for the operation for perforating the membrana tympani; Saunders, the founder of the London Infirmary for Diseases of the Eye, whose work on the Anatomy of the Human Ear, illustrated by a series of engravings of the natural size, with a treatise on the Diseases of that Organ, the Causes of Deafness, and their proper treatment, published in 1806, Mr. Wilde regards as the first English production, on this specialty, possessing any merit; Delau, Itard, Valleroux, in France; Kramer, Lincke, Schmalz, and Frank in Germany; and latterly, in England, Pilcher, Dr. J. Williams, Wharton Jones, Yearsley, Harvey, and Toynbee, to the last of whom we are particularly indebted for the greatest number of *post-mortem* examinations of the ear.

The three great epochs in the history of Aural surgery, are marked by the introduction of the *speculum auris* by Fabricius Von Hilden, about the middle of the seventeenth century; the suggestion and employment of the Eustachian catheter, by Guyot, Cleland, and Watham, within the succeeding hundred years; and finally, the perforation of the membrana tympani by

Degravers and Sir Astley Cooper in the last quarter of the eighteenth, and in the commencement of the present century.

As to the plan and scope of the present work, Mr. Wilde says:—

"At the commencement of each chapter I have given a brief anatomical description of the parts concerned in the affections under consideration, and a concise account of their most remarkable malformations and congenital diseases; afterwards, the etiology and treatment of those diseases with which I am myself most familiar are described. I have followed that division into the diseases of the external, middle, and internal ear, because it seems to facilitate description, as well as to make the most lasting impression on the mind of the student. The work concludes with a section on deaf-dumbness, which contains the result of the inquiry set on foot under the Irish Census-commission for 1851, and which I have compressed from the official report upon that subject."

The means of diagnosis, and the application of remedies are the subjects of the second chapter. In it we find a more complete and detailed account of the plan to be pursued in examining patients labouring under Aural affections than we have seen in any other publication. The importance of such instruction cannot be overestimated, as it lays at the foundation of, and should determine, all subsequent proceedings. We propose, therefore, to give, as concisely as possible, the course which Mr. Wilde recommends.

The physical examination should be prefaced by so placing the patient that a strong, direct sunlight, if possible, should fall upon the ear. The colour, feel, temperature, thickness, &c. of the auricle should be ascertained; the concha should be particularly scrutinized with reference to these points. Then, the upper rim of the helix should be lifted upwards, backwards, and outwards by the thumb and finger of one hand, and the tragus should be drawn forwards upon the zygoma, so as to expose to view the outer portion of the auditory canal. To facilitate the exposition of the external aperture, a little instrument, resembling in shape the ordinary univalve speculum recti, but more delicate, of course, may be employed. The amount of tenderness of the parts should be investigated, both by simple pressure and by compression made with the finger while the lower jaw is moved as in ordinary mastication.

"Where we have reason to believe," says Mr. Wilde, "that inflammatory action exists, the *mastoid process*, in an especial manner, claims our attention. Its colour, size, shape, and temperature, may be learned by even a cursory examination; but besides this, it should be most carefully pressed upon with a couple of fingers, with a much greater degree of firmness than is usual in making examinations of the like nature elsewhere; and this examination should not only be applied to the mastoid region, but to the whole posterior and lateral portion of the head, if we have reason to suspect any inflammation, or its effects. The insertion of the sterno-mastoid, as well as the upper third of that muscle, should also be carefully examined in the same way, as there is a small gland, in shape and size like a horsebean, situated immediately behind the auricle, over the middle of the mastoid process, which frequently becomes enlarged during the progress of aural inflammations, and is also the seat of violent neuralgic pain in some instances. If the integuments and soft parts are swollen or œdematous, as is frequently the case in certain inflammatory affections of the ear, as also where they have become thickened from long-continued disease, it will require a considerable degree of force to make a perfectly satisfactory examination. The amount of pitting made by the finger during this examination, and its degree of permanency, are also circumstances of value in the formation of a diagnosis. Percussion of the mastoid process, immediately behind the attachment of the auricle, occasionally affords some information, as will be shown in some of the cases hereafter detailed."

In order to ascertain the condition of the auditory canal and the external face of the membrana tympani, it is necessary to employ some kind of *speculum* through which a stream of light, either that of the sun or of a flame, shall be conveyed directly down upon the surface to be examined. Mr. Wilde discusses the merits and defects of the various instruments devised and used for this purpose, and which we need not enumerate, and expresses his conviction of the superiority of the one which he himself introduced in 1844—a modification of that invented by Dr. Newburg, in 1827. This speculum is a conical silver tube, both surfaces of which are highly polished; it is an inch and a half long, five-eighths of an inch wide at the greater aperture, which is surrounded by a stout ring or burr, and varying from two to four lines in the clear at the smaller extremity, of which the outer surface should be perfectly smooth and rounded, so as not to lacerate or scrape the lining membrane of the meatus. He advises that three of these little instruments of different sizes should be procured and carried in a small case, one fitting into another. We may remark that drawings of this speculum, as well as of all the other instruments invented by Mr. Wilde, are introduced into this book. The patient being seated opposite a strong sunlight, the tube is inserted gently into the meatus, and the head is so inclined that the light shall strike successively upon every part of the surfaces to be examined, so that the surgeon's eye may carefully scrutinize the whole. "By this means, every part of the external auditory tube, and the membrana tympani, and even the position of the malleus within it, may be as distinctly seen and as carefully examined as any portion of the external surface of the eye." "Another great advantage which this funnel-like speculum possesses over all others is, that it remains fixed in the ear, causing scarcely any inconvenience, and leaving one or both hands free for the application of instruments if necessary. It is also much more easily used with young children than any other." Of course it is not possible to *dilate* the auditory canal by a hinge-jointed or any other speculum; the most that can be accomplished is to straighten the external cartilaginous portion of the tube, and thus permit the light to penetrate to its bottom and sides. It is hardly requisite to state that if the canal be plugged up with hardened cerumen, this must be removed, and the lining membrane be uncovered before a satisfactory examination of the latter can be made. For the purpose of clearing the passage, tepid water may be injected from a syringe; or, if the obstruction be but partial, consisting of a small quantity of wax, or of detached cuticle, hairs, or other small bodies, a pair of fine forceps may be employed, being passed through the speculum or not, as the surgeon may choose. The forceps which Mr. Wilde recommends for this object are long and slender, having the blades bent at an obtuse angle, so that when occupying the cavity of the speculum they do not prevent the operator from looking into the tube. An objection to using the syringe is, that, in cases where there is any inflammatory condition of the lining membrane of the meatus, or even a tendency to this state, the stream of water usually increases the already existing injection, or reddens the membrane which may previously have been little if at all suffused. Clear and minute directions are given as to the mode of using the syringe and the other instruments employed.

The form, curvature, colour, polish, vascularity, and the secretion of the entire lining membrane of the meatus, together with the condition of the membrana tympani, are to be carefully noted.

"The *tympanal membrane*, in an especial manner, claims our attention; not only its superficial colour, but its degree of opacity or transparency, its tenuity or thickening, its vascularity, and the arrangement and position of its vessels

in every part; its tension, flexibility, polish, curvature, and its position as regards the interior of the cavity of which it forms the outward boundary; and, also, the direction and projection of the handle of the malleus, and the characters of the membrane, both above and below this bone, should be carefully observed. While the membrane is thus within the field of the speculum, the patient should be desired to try and press air into the drum, by holding the nose, shutting the mouth, and making a forced expiration. This manœuvre should be resorted to several times, if the first be ineffectual, as some degree of tact on the part of the patient is necessary to test the experiment. The sound thus produced is a sort of *thug*, and very much resembles that of a dried bladder suddenly inflated with air. In order to become familiar with it, one should practise it himself. While the air is thus pressed into the drum, we should note accurately whether the membrane vibrates, or its tensity is altered; and, if so, whether it regains its original position suddenly or gradually. The patient's own sensations should likewise be taken into account in this matter. It is also necessary carefully to observe the degree of vascularity produced by this inflation, as well as the course and position of the vessels which cause such vascularity, for even in several healthy ears, if this experiment is made two or three times, we seldom fail to recognize one or two vessels becoming filled with red blood along the course of the malleus; and if a small aperture exist in the membrane which may have escaped the eye previously, we may then readily detect it both by sight and hearing. By this means, we often discover a perforation which, from its minuteness, or owing to the part being thickened or coated with discharge, had not been noted during the ocular inspection. If such exist, we shall then see its open everted lips sometimes pressing out mucous discharge, and also hear a peculiar whistling sound, which the air makes in passing through this narrow aperture. There are, however, some cases of perforate membrana tympani, where, from obstruction in the upper part of the Eustachian tube, or granulations in the middle ear, this cannot be effected. If the patient be able to inflate the tympanum by this method, we may then remove the speculum, and, applying our own ear, either directly or through the intervention of the stethoscope placed over the external auditory passage, the same method of inflation should again be had recourse to, and the peculiarity of sound which is thus produced in the middle ear, whether the ordinary normal rush of air, or a prolonged squealing or gurgling sound, such as might be occasioned by any contraction in, or thickening of, the walls of the Eustachian tube, or by dryness, or by accumulation of mucus, either in it or in the cavity of the tympanum, is heard. The stethoscope should also be applied over the mastoid process, and the same series of observations made upon the sounds, if any, produced there; but these latter can seldom be heard distinctly.

"If the patient be unable to inflate the tympanum, and we have reason to suspect some obstruction of the *Eustachian tube*, or an accumulation of mucus, blood, pus, or other matter, in the middle ear, we may then, should the case require it, proceed to inject air by the mechanical means of a pump, an elastic tube or catheter, into the cavity of the tympanum, while we carefully note the result by means of a stethoscope, or by the ear placed externally. It must, however, be particularly borne in mind that, if the patient is labouring at the time under acute inflammation of the drum or its membranes, or the lining of the Eustachian tube, the catheter is not only inapplicable, but highly injurious. I have latterly very seldom found it necessary to resort to this operation, as the cases to which it is applicable are of much greater rarity than is usually supposed, or as the works of aurists would lead us to believe."

Mr. Wilde furnishes very precise and detailed directions for the performance of Eustachian catheterism, and for injecting air or other substances into the tube, and describes the implements with which these operations may be best accomplished.

He insists abundantly upon the necessity of using extreme care and gentleness, and criticizes earnestly the too frequent and unnecessary resort to such

proceedings. The aphorism laid down by Sir Astley Cooper, is, like most of the rules of that distinguished surgeon, a very safe one: "Whenever the patient is himself able to inflate the tympanum, never use any artificial means to do so; it is unnecessary, and may be injurious." To this, Mr. Wilde adds another equally judicious: "Where there is reason to believe that the cavity of the drum is inflamed, carefully abstain from all poking with catheters, or any attempt to introduce foreign substances into that delicately organized portion of the animal machine." He particularly reprehends the dangerous practice, urged by some aurists, of exploring the upper part of the Eustachian tube, and even of attempting to penetrate to the cavity of the tympanum, by means of probes of various kinds. He says:—

"The only solid instrument with which I now ever venture to explore the Eustachian passage, and that for only a short distance, is an ivory bougie, rendered flexible by having the earthy matter removed by immersion in an acid, and the point of which, for an inch at least, had been previously softened in water, so as to resemble a piece of gelatine. A large-sized catheter should be first introduced, and the bougie passed up through it; but stricture of the Eustachian tube is so exceedingly rare, and so difficult to recognize during life, that the surgeon is very seldom called on to practise such an operation."

Various instruments have been contrived by Schmalz and others, for the purpose of measuring the hearing distance and the degree of deafness. Mr. Wilde prefers the ordinary watch which ticks loudly. The watch should be first held close to the external meatus, and then gradually removed, and the greatest distance at which the ear can count its tickings should be carefully noted and recorded, for subsequent comparison. The watch should be held in various positions with reference to the ear; in front, behind, in contact with the auricle, touching the mastoid process, the forehead, the teeth, &c.; it should also be tested with the mouth open and shut, both before and after inflation of the tympanum.

Some persons, more or less affected with deafness, hear comparatively faint sounds best when they are at the same time exposed to loud noises, as the rumbling of a cart, the thundering of a railroad train; some hear unequally at different periods of the day, after and before meals, in dry and in damp weather. These and similar peculiarities should be accurately inquired into.

Subjective sounds, commonly called tinnitus aurium, furnish also points of consideration in forming a diagnosis. Their importance is very variable, however.

The condition of the *throat*, the arches of the palate, uvula, tonsils, and pharynx, should also be investigated, particularly with reference to the state of the mucous membrane. The forefinger should be introduced far into the mouth, and its point pressed firmly upwards and outwards beyond the palatine arch, opposite the mouth of the Eustachian tube, and note taken of the degree of pain or inconvenience it produces there and in the middle ear. We should also carefully examine the state of the lining membrane of the nose.

The history of the case in all its aspects, and the subjective symptoms, should be investigated as in other diseases.

The *treatment* which Mr. Wilde recommends is much more actively antiphlogistic than is commonly supposed requisite by practitioners whose attention has not been specially directed to aural diseases. He says:—

"As most of the diseases of the organ of hearing are originally of an inflammatory character, depletion is strictly enjoined; I have, however, seldom found it necessary to resort to general bleeding; but local depletion is imperatively required, either by cupping or by leeches." In employing the latter,

they should not be applied, as is usually done, behind the mastoid process; but, to be of real service, "they must be attached with a small bevel-mouthed leech-glass immediately around and within the edge of the external meatus, in the fossa behind the tragus, and, if necessary, in front of that prominence, in the hollow formed by depressing the jaw."

He likewise insists strongly upon the importance of administering mercury, so as to affect the system, in all active inflammations of the ear which do not promptly yield to local measures. His remarks upon the modes of exhibiting this medicine, and the best forms in which it can be given, are very judicious.

"Under no circumstances," says he, "should we pour any sedative or stimulating liquors into the ear. From the frequency of this most unjustifiable practice in this country" (and can we not extend this same remark to our own?), "I feel I cannot too strongly deprecate it. If there is one substance more irritating than another in the Pharmacopœia, it is poured, *secundum artem*, into the ear, to relieve pain or cure deafness, to lessen or increase the secretion of wax! This practice is often the cause of myringitis."

It will be seen that Mr. Wilde applies the habit of close observation and prompt and decided action, which are felt to be necessary in the practice of ophthalmic medicine and surgery, to the examination and treatment of diseases of the ear. And in fact, throughout his book, he makes the known analogies of the structures and functions of the eye and ear practically useful and instructive in the management of the affections of the latter organ. We cannot too highly commend this chapter to the consideration of our readers.

The third chapter is allotted to an exposition of the *statistics* and *nosology* of ear diseases.

Mr. Wilde passes in review the reports of Kramer, Tscharner and Toynbee, and then furnishes us with the statistics of St. Mark's Hospital, embraced within a period of rather more than eight years, and comprising 2,385 cases. In this statement are recorded the nature of the particular disease of the organ, the age and sex of each patient.

This section is admirably prepared, and exhibits throughout a candour and a diagnostic acumen worthy of all imitation. He says:—

"As the acquisition of knowledge is progressive, so my means of forming an accurate diagnosis improved with my experience, and therefore the value to be attached to the early years included in this table is not so great as that for a later period. I have consequently divided the results into two portions; the first including three, the second four and a-half years. In the first portion of the table, out of 706 recorded cases, 85 were set down to *nervous deafness*, which I am inclined to think was an exaggeration, as, by a more carefully conducted examination, and with increased experience, I found but 18 cases out of 1679 in the second period; having observed since the former period that many of the cases attributed, for want of a better name, to 'nervous deafness,' showed such manifest appearances of diseased action in the membrana tympani, that little doubt now remains upon my mind that the defect of hearing was to be attributed, not to paralysis or want of power in the auditory nerves, but to lesions produced by inflammation. Again, in the first period there is no entry for opacity and thickening of the membrana tympani, the unmistakable result of inflammation, but as many as 219 in the second; and under the head of inflammation of a chronic character, we find but 82 cases noted in the first, and 314 in the second."

Of the 2,385 cases reported, 579 were simply of impaired hearing produced by impaction of the external auditory passage with cerumen; 114 of nervous deafness, so called; 25 of tinnitus aurium, unaccompanied by deafness or any apparent disease; 14 of otaliga; 7 of deaf-dumbness, congenital or acquired; 2 of accidental hemorrhage from the tympanal cavity; 7 of congenital mal-

formation; 20 of collapsed membrana tympani; and two of tumours of the auricle; making in all but 770 diseases of the ear not directly traceable to inflammation or its effects.

It will be seen, therefore, that Mr. Wilde believes in the comparative infrequency of pure and simple *nervous deafness.* And to confirm his position, he inquires into the proportions which uncomplicated *amaurosis* bears to the mass of ophthalmic diseases. "Out of 11,233 cases registered at St. Mark's Hospital, but 857 were diseases of the retina and optic nerve, and only 341 of these were instances of uncomplicated amaurosis, or about 1 in every 33 of the entire." Now, bearing in mind the fact that the ear is less accessible to accurate examination than the eye, it is exceedingly likely that existing evidences of inflammation in the former may have escaped observation.

In this matter, Mr. Wilde's statistics are very much opposed to those of Kramer. Of his aggregate 2,000 cases, published in 1845, the *Berlin Aurist* designates 1,028 as of simple nervous deafness, or more than one-half; and of the second 2,000, published in 1849, 848 are of the same kind. Mr. Wilde very forcibly, and indeed unanswerably, combats the accuracy of this estimate not only upon the ground of his own observations, the analogy drawn from the comparative rarity of simple *amaurosis*, and the positive results of Mr. Toynbee's numerous dissections, but also from Mr. Kramer's own record of the appearance presented by the membrana tympani in the cases in question. Dr. Kramer states that, in nervous deafness, he has "almost always found the membrana tympani white like paper, and opaque, probably in consequence of the action of its absorbent vessels having been impaired." In reply to this assertion, Mr. Wilde very cogently remarks:—

"Now, had Dr. Kramer been conversant with the normal healthy condition of the membrana tympani, he would have known that it was shining, diaphanous, or semitransparent, and of a yellow-gray tint (except towards its superior attachment, and along the line of insertion of the handle of the hammer-bone), somewhat the colour of gold-beaters' skin, or, what bears a still closer similitude, on account of its greater thickness and fleshy tint, the thin sheet gutta percha which has been lately introduced for surgical purposes."

The opinion of Mr. Wilde is confirmed by Mr. Toynbee's dissections, an abstract of which, taken from the *Medico-Chirurgical Transactions*, vols. 24, 26, and 32, is presented. Mr. Toynbee has examined 915 ears of 750 persons; of these, 303 were in a healthy state. Of the remaining 612, 184 had belonged to persons who are known to have been deaf; 70 showed such manifest evidences of disease as left no doubt upon the mind of Mr. Toynbee that defective hearing was experienced in these also; and 358 were believed by him to have been in a state of commencing deafness. The following is part of the conclusion of Mr. T., drawn from his examinations: "The fact of a thickened or otherwise deranged state of the mucous membrane lining the tympanic cavity being one of the most common pathological conditions of the organ of hearing, is the broadest general result of the dissections; and as cases as carefully examined, noted, and studied as they have arisen in practice, and lead to the same conclusion, I have little hesitation in stating diseases of that membrane to be the most usual cause of deafness."

The following are a few of the figures of Mr. Toynbee, which we copy to show how this inference is supported. The external meatus exhibited disease in 80 instances, or one in every 7⅝ cases; consisting of collections of cerumen and epithelium, pus and epithelium, contraction of canal with alterations in its lining membrane and osseous parietes. The membrana tympani was diseased in 209 cases, or nearly 1 in every 3, being white, thickened, or vascular; concave

externally or flat; concave and adhering to promontory; concave with deposits of calcareous matter; perforated or altogether destroyed, &c. The cavitas tympani contained morbid collections in 107 cases, or about 1 in every 6; its mucous membrane was diseased in 310 cases; bands of adhesion were found in it in 179 cases; the number of instances in which the ossicles were diseased or displaced amounted to 61. The internal ear exhibited the following departures from the healthy condition: The membranous labyrinth was thickened in 4 instances; atrophied in 6; the labyrinthine fluids were deficient in 8; the vestibule and cochlea contained bloody serum in 1 case, pus in 1; a band traversed the vestibule in 1.

In addition to the tabular exposition already alluded to, Mr. Wilde furnishes another, based upon 200 cases, of which all the important features are minutely detailed—exhibiting in each case the sex, age, and ear affected; the duration of the disease; the hearing distance; the state of the auricle, of the external meatus and canal, of the membrana tympani, of the middle ear and Eustachian tube; the amount and kind of pain; the degree and nature of the noises complained of; the state of the throat, and the cause to which the aural disease was ascribed. This is certainly the most carefully compiled, and the most minute table of diseases of the ear which has ever been published. We present the following brief abstract of some of its most interesting facts:—

In 27 instances, both ears were similarly and nearly equally affected; in 100, both ears were diseased, but under varying circumstances in the two ears; in 35, the right ear, and in 38 the left, was alone affected.

In 27 persons, the disease was within one month's duration; in 40, from one to six months; in 17, from six to twelve; 45 were affected from one to five years; 29, from five to ten; and 34 for a longer period.

The hearing distance varied very much: 70 of the patients could not hear the watch under any circumstances; 4 heard on its being pressed against the auricle; 61, on its merely touching that part; 125, within six inches; 22, from that to three feet, and upwards; and in 18, the hearing distance was normal, or not noted.

The meatus and external auditory canal were normal in 68 persons; dry and devoid of cerumen, with the membrane unnaturally white and slightly wrinkled, in 78; coated with discharge, the lining membrane thickened, and frequently pink or vascular, or the passage filled with crusts of inspissated mucus, in 83, and of these 18 had polypi growing from some portion of the canal; in 26 cases, the canal was inflamed; in 9, its walls were so much thickened or approximated as to give the external auditory aperture the appearance of a mere slit; bony growths presented in 4 instances; a few cases occurred of condylomata and other protuberances filling up the meatus, and 4 of congenital peculiarities as regards the length, width, and tortuosity of this canal.

The membrana tympani was normal in only 10 instances, "so that such may be fairly stated as the proportion of cases of *nervous deafness*. In 176 it was thickened and opaque, in whole or in part, from disease of its external layer, owing to inflammations of various kinds—with and without otorrhœa, pressure, or ulceration—from deposits of lymph between its laminæ, or from thickening or vascularity of its mucous lining. These opacities presented the same shades of diversity as do those of the cornea, and they were equally variable in position and in extent. In 121 cases, the membrane was more or less vascular; sometimes presenting a uniform pinkish hue, varying in depth "from that of a monthly rose-leaf to that of a bright blood-red or scarlet, as when affected with recent inflammation;" sometimes the redness was in points

or in striæ; in some, the whole surface was not only of a deep-red colour, but also granular, like that of a ripe raspberry or a granular eyelid. Although, says Mr. Wilde, "this corneous condition was often seen, and although so many cases of otorrhœa and polypus occurred, I have never observed a polypus growing from the external surface of the membrana tympani, either in these 200 cases, or in the many hundred ears that I have examined."

In 53 cases, the membrana tympani was more or less collapsed, depending, according to the dissections of Mr. Swan and Mr. Toynbee, upon adhesions passing through the cavitas tympani, either between the mucous surface of the membrane itself or the ossicula connecting it with the inner wall of the cavity. The membrana tympani was perforated in 48 cases, the size and position of the aperture being very variable. In 22 instances, the membrane was invisible, from obstructions existing in the canal.

The cavity was exposed in 28 ears; in 89 its state is not recorded; in 129 it was inflatable, in 73 not inflatable, the mode of testing this condition having been by the patient's own efforts, or by the use of the Eustachian catheter and air press.

"The state of the throat was normal in 181 cases out of the 200, a fact which goes far to disprove all that has been written upon what has been termed '*throat deafness*;' but then it is only fair to state that enlarged tonsils are rare among the lower orders."

The following conclusion is important, both in a preventive and in a curative point of view:—

"From the records of the foregoing 200 cases, taken indiscriminately as they presented themselves at a public institution, as well as from Mr. Toynbee's dissections already detailed, it is incontrovertibly manifest that inflammatory affections of some form or other have been the chief causes of aural diseases. This conclusion must, I think, be conceded; and it is of vast importance that the profession should be convinced on that point, as, on the one hand, it shows not only the inapplicability of the various nostrums still in use for 'deafness,' while, on the other, it holds out a fair hope of alleviating diseases of the ear, if taken in time, by the ordinary means employed for arresting inflammation of the structures engaged."

Mr. Wilde then proceeds to consider the proper *classification* of aural diseases; and, after alluding to the systems proposed and adopted by other investigators of this subject, he propounds his own plan. He arranges these affections into diseases of the auricle and the auricular regions; those of the external meatus, of the membrana tympani, of the cavitas tympani, of the Eustachian tube, and of the labyrinth; and finally treats of deaf-dumbness, congenital and acquired. Each of these classes, with its numerous subdivisions, is treated of in separate chapters.

Before touching upon the pathology and treatment of the diseases of the auricle, mastoid region, and external meatus, described in the fourth chapter, Mr. Wilde details with considerable minuteness the anatomy of these parts—a course which, by the way, he pursues with reference to the other portions of the ear.

Passing by, as we are compelled to do, for want of space, many very interesting topics, we pause for a moment to commend the author's observations with reference to foreign bodies lodged in the external auditory canal. Accidents much more serious than is commonly supposed, such as epilepsy, and even death, have followed this ingress, accidental or otherwise, of extraneous substances; and probably much greater mischief is frequently produced by the unskilful and rude efforts made to dislodge them. Several insects, the

larvæ of flies, peas, the seeds of grain, beads, small pebbles, &c. &c., are often met with in the ear. Mr. Wilde narrates the case of a child who, while playing, allowed a small white stone to slip into the external meatus. A practitioner had employed various instruments to remove it, but, not succeeding in his attempts, he brought the child to Mr. W. The ear was bleeding freely; upon examining, he found the meatus extensively lacerated, and could touch a white rough surface on its anterior wall; this, however, was evidently not the pebble, but the denuded bone; he advised a suspension of hostilities until the hemorrhage should cease. A leech was applied to the margin of the meatus, and afterwards a poultice was laid upon the ear. During the night suppuration commenced, and on syringing the ear with tepid water in the morning, out came the pebble. But, unhappily, the membrana tympani had been ruptured anteriorly by the previous violence, and the bone extensively denuded.

The injection of tepid water will frequently suffice to wash out the offending body; or, at any rate, it will generally alter its position, and permit its extraction by means of a delicate forceps or a curette. But in using instruments, the greatest care should always be employed.

Diseases of the membrana tympani are the subject of the fifth chapter.

We quote from Mr. Wilde's careful description of the anatomy of the membrane the following paragraph, exhibiting the appearance of this important part of the auditory organ in its healthy state:—

"Viewed through the speculum, with a stream of clear sunlight upon it, the membrana tympani is of a grayish hue and semitransparent, and presents externally an irregularly curved surface, as also different degrees of density, polish, and tension. It is divided by a white streak, thick above and narrow below, except at its extremity, which is slightly enlarged, and indented into a navel-like depression. This white opaque line is the manubrium of the malleus, proceeding from the upper attachment of the membrane downwards, somewhat backwards, and a little inwards, to a point slightly below the centre of the membrane, and thus divides it into an anterior, a posterior, and an inferior portion. But the exact situation of this bone, and consequently the relative proportion of the parts which it divides, present great diversity. The anterior part of the membrane is thin, almost transparent, or as clear as fine gold-beaters' skin, highly polished and generally *convex*, a speck of bright light being reflected from its most prominent part. This may be called the anterior vibrating portion. In many cases, the short process of the malleus may be seen as a small round dot above the manubrium, where the membrane curves off into the roof of the meatus. The bottom of the meatus, it should be remembered, is funnel-shaped, the broad end of the funnel being towards the tympanum," &c. &c.

In making this examination, the speculum should not be inserted much beyond the middle of the meatus; then, by altering the position of the head and the angle of the instrument, the entire extent of the membrane may be seen. Its vascularity and the shape of its presenting surface are more or less affected by examining it whilst the cavity of the tympanum is inflated.

The appearances presented by a healthy tympanal membrane should certainly be accurately scanned by any one who attempts to practise aural surgery, just as much as the normal sounds of respiration or of the heart should be learned by any one who proposes to study auscultation. We know not where the student can so well seek for the necessary information to guide and assist his own observations as in these nine pages of Mr. Wilde.

In speaking of *wounds and injuries* of the membrana tympani, Mr. Wilde attributes their most frequent cause, apart from direct mechanical violence, to which we have already adverted, to sudden and violent concussion of the

atmosphere, as in the discharge of heavy artillery; to diving deeply into, and remaining unusually long under, water; to prolonged coughing, as in pertussis; to hard blowing of the nose; to severe congestion of the head, as in a fit of intoxication, &c. A sergeant of artillery informs him that "many of his men say that they have seen hemorrhage occur from the ear, but it is not so frequent as is supposed; dulness of hearing is, however, very common, especially among old gunners. The effect of position, with reference to the gun, is peculiar; those men who stand nearest the muzzle feel the report most, but all who are to leeward suffer more than those who are to windward. Brass ordnance make a sharper report and ring louder than iron guns, the usual effect of which, as I myself have experienced, is that of receiving a smart blow upon the tympanum; this, however, soon passes off, and leaves a singing or tingling sensation in the ear for two or three days. Another peculiar sensation is that of having water in the ear, as after bathing. After some practice, the ear becomes accustomed to the shock, and men learn by experience where to stand so as to feel the concussion least." Occasionally, too, paralysis of the facial nerve coincides with that of the auditory, as in an instance recorded by Mr. Wilde.

With regard to the duty of the surgeon, when called to a case of injury to the membrane, Mr. Wilde says: "I believe that the best treatment which can be adopted for recent injuries of the membrana tympani is to let them alone, unless inflammation should arise, when this must be met by local depletion, &c. It is remarkable that whilst we experience the greatest difficulty in keeping open a perforation made with a surgical instrument, accidental openings seldom close." This fact is less remarkable when we consider the greater violence done in the latter than in the former case; the last partake more of the character of incised, the first of contused and lacerated wounds.

Inflammations of the *membrana tympani* receive from Mr. Wilde a large share of attention, not more, however, than they deserve, considering not only their intrinsic importance and the serious consequences which they entail, but also the fact, according to the author, that inflammation of the *middle ear* always, and at the very commencement, is shown by the appearance of the membrana tympani. He says, indeed, "I do not believe it possible for one to exist independent of the other for any length of time; no more than an ophthalmia can be circumscribed, or that we can by the term iritis define a single uncomplicated inflammation of the membranous diaphragm of the ocular chamber."

The term *myringitis* is applied to inflammation of the membrana, and *tympanitis* to that of the cavitas tympani.

Mr. Wilde treats of inflammation of the membrane under the following divisions:—

1. Acute inflammation of the membrana tympani, commencing in its fibrous layer, accompanied by phlogosis of the cavity of the tympanum; frequently of a rheumatic character.
2. Subacute inflammation, unaccompanied by pain.
3. Syphilitic inflammation.
4. Strumous inflammation, generally in the mucous layer, with mucous engorgements of the tympanum.
5. Chronic inflammation, with or without inflammation of the cavity of the tympanum.
6. Inflammations accompanying the exanthematic and other fevers, extending from the tympanum, and generally producing otorrhœa.

We cannot pretend to follow Mr. Wilde through his instructive and elabo-

rate descriptions of these states of the membrane. Suffice it to say, that they are to be investigated after the manner already pointed out; and, that they are revealed by modifications of vascularity, secretion, and sensation, just as analogous tissues in other parts of the body give evidence of the inflammatory condition. There is nothing specific or peculiar in the diseases of the tissues composing the ear, differing from those of the same kind of structures elsewhere; and we regard it as one of the excellences of Mr. Wilde's book, and as a sufficient proof of his veracity, honesty, and sound pathological views, that he does not attempt to magnify the difficulties attending the study of one of his favourite branches, and consequently to trumpet forth his own praises for having so happily surmounted them, as is too apt to be the case with *specialists* in medicine.

We shall cite his remarks, here and there, upon a few topics considered in this portion of the volume.

In detailing the symptoms of *acute myringitis*, he says:—

"I have known a man to be treated for inflammation of the brain who merely laboured under inflammation of the ear; and, on the other hand, a very curious impression exists among, and is too frequently acted on by the profession, that earache is a neuralgic affection. To this very general mistake we must attribute the practice, so frequently and empirically resorted to, of pouring into the ear the various nostrums, sedatives, and stimulants, calculated to allay pain in external parts. So rare is true neuralgia of the ear, that Dr. Kramer says he 'never observed earache without evidence of inflammation, either of the meatus or of the membrana tympani.' Although I am not prepared to go the length of saying that such an affection does not occasionally exist, I must say, that I cannot tax my memory with more than one or two instances of so-called 'nervous otalgia,' for which I have been consulted, that upon a careful examination I could not discover some direct visible cause for it; and I must, therefore, with Dr. Kramer, 'deny to those persons the right of pronouncing a decisive opinion upon the existence of a nervous otalgia, who do not understand investigating the membrana tympani in bright sunshine, and with the aid of the speculum, and who are not in the habit of doing it.'"

The antiphlogistic treatment should be resorted to in this affection. The patient should remain in a warm, well-ventilated apartment; or, if compelled to go out, the cold air should be carefully excluded from the ear; in severe cases, he should be confined to bed. General bleeding is rarely necessary; but a few leeches, applied in the manner already described, should take blood from around the external meatus, and the abstraction should be repeated, if necessary, followed by the application of moist heat. The general treatment is the same as that employed to relieve other inflammatory affections; and the use of mercury should be unhesitatingly resorted to, if the symptoms do not speedily yield to the means previously tried. The state of the meatus and the membrana tympani should be examined daily by the aid of the speculum; if an ulcer is detected, it should be touched with a solution of nitrate of silver on a camel-hair pencil. Mucous or purulent secretions should be gently removed by syringing with simple tepid water. No astringent injections being employed during the existence of active inflammation.

Should the *mastoid process*, or the soft parts covering it, become implicated, and relief should not follow the remedies already enumerated, and particularly if there be any sense of fluctuation, however obscure, Mr. Wilde insists upon the importance of freely cutting through to the bone.

Under the head of the treatment of *subacute myringitis*, we find the following suggestion, which is new to us. To relieve the tinnitus aurium, which frequently remains for a considerable time after the inflammation has ceased,

Mr. Wilde says that he has found the preparations of the *arnica montana* of decided benefit; indeed, he observes:—

"It is the only medicine with which I am acquainted which seems to possess a specific power over this annoying and usually most intractable complaint. The preparation which I find most efficacious is the tincture, both of the flowers and the leaves, of which the patient should commence by taking fifteen drops in a tablespoonful of the infusion of arnica, with some aromatic tincture, three times a day. After a few days, the dose should be increased one or two drops daily, till it reaches thirty, or even more, unless headache or giddiness should be produced, when we should at once lessen the dose, or omit the medicine altogether for a time. The state of the bowels should be carefully attended to during the administration of this drug."

This medicine should only be employed after the original cause of the tinnitus has subsided, or when it exists without any apparent lesion of the parts. The formula for the preparation of this tincture is: "One ounce and a half of the *flowers* to a pint of rectified spirit of wine; macerate for fourteen days and strain; or, of the *leaves*, the same quantity infused for a similar period in proof spirits." In prescribing them, Mr. Wilde usually orders equal proportions.

We find a very interesting section on *otitis occurring in connection with ophthalmia*, a complex form of disease, met with most commonly in strumous children, in whom the aural affection is very apt to pass unnoticed, from the simple fact that the condition of the eyes is the most apparent and the most unpleasant.

The complication may be more serious than could be anticipated.

"If we look," says Mr. Wilde, "into the statistics of deaf-dumbness in different countries in Europe and America—and the same holds good with respect to the investigations instituted in Ireland on this subject—we shall find, among the causes of acquired muteism, 'diseases of the eyes' frequently recorded. Now, as we cannot suppose that diseases of the organs of vision could of themselves produce total deafness, leading to complete loss of speech, we are forced to the conclusion that, with the ophthalmic disease, co-existed some insidious aural affection such as I have described, and so intense as to produce deafness, and, in very young persons, consequent loss of speech." After citing a case in point, he observes: "In cases of this nature, the patient should be encouraged to speak as much as possible, and on no account to employ signs or finger-writing. He should be spoken to in a clear, distinct tone of voice, not too loud, and the mouth should be removed from his ear gradually day by day, so as, if possible, to educate the sense, and increase the hearing distance; he should also be made to read aloud every day," &c.

Passing over the important sections on *chronic inflammation* of the membrana tympani, *morbid deposits in*, and *collapse* of, the same, not to enumerate others, from all of which we might advantageously quote, we come to the consideration of *artificial perforation* of the membrane. This is an operation which was at one time vastly praised and talked about, but concerning which we now hear correspondingly little.

The conditions for which this proceeding is commonly recommended are closure of the Eustachian tube, accumulation of extraneous matters within the tympanum, and thickening of the membrana tympani. Mr. Wilde does not consider the operation as either required or proper in the first class of cases; and in those instances of permanent thickening and opacity of the membrana, where the proper treatment has failed to induce thinning, he looks upon the operation with doubt, because the condition of the membrana tympani above specified is usually merely coincidental with "a general thickening and disorganization of

the investing membrane of the middle ear, perhaps that of the labyrinth also," which is beyond our vision. But, when we are convinced that the cavity of the tympanum is filled with uncoagulated blood, or other fluid, which cannot find exit through the Eustachian tube, he thinks that an aperture should be made to give it escape.

To perforate the membrane, he discards all complicated instruments; because the operation cannot be done safely excepting through the speculum, along which a stream of sunlight should pass to the bottom of the canal, and the perforating instruments in use fill up the tube of the speculum so much, that the eye cannot watch and guide their motions; and because, also, most of them inflict a great deal of pain. He therefore prefers to use a narrow knife, with a sickle-shaped blade, cutting on both edges; and, having introduced the speculum, and made the patient inflate the tympanum, so as to render the membrane tense and pressed outwards, he gently inserts the knife through its inferior thin and vibrating portion, draws the blade then downwards and forwards, and makes a simple incision of the membrane, about a line and a half long. If left to itself, this incision would speedily close; he therefore touches its edges lightly with lunar caustic, as often as may be necessary, to render the opening sufficiently large.

We pass on to the sixth chapter, which treats of *diseases of the middle ear* and *Eustachian tube.*

Much has been said and written about *throat* deafness, and the frequency with which disease of the throat produces deafness. It appears to us, that Mr. Wilde has taken the proper view of this question. He says:—

"Viewed in the recent state, by making a central vertical section through the base of the skull, mouth, and pharynx, the lower opening of the Eustachian tube presents an obliquely upright elliptical slit or fissure, about half an inch long, with thick, round, and slightly prominent lips. Placed thus behind, and so much above the hard and soft palate, it is manifest that the tonsils, even when enlarged, cannot press upon its partially open mouth without first coming in contact with the palate, and lifting upwards and backwards the velum, which, it is well known, never occurs. When the tonsils are in a state of chronic enlargement from hypertrophy of their follicles, thickening of their mucous membrane, and cheesy, calcareous, or other abnormal deposit within their structure, they first approach one another, and consequently encroach upon the size and shape of the isthmus faucium, then towards the cavity of the mouth, and afterwards into the bag of the pharynx. I have never seen or heard of a preparation showing the greatest possible enlargement of the tonsil, in which it pressed upon the trumpet-mouth of the Eustachian tube. Anatomists will, therefore, find it as difficult to believe that enlarged tonsils produce deafness, as practical surgeons to believe that their removal can in any way relieve loss of hearing. When deafness co-exists with enlarged tonsils, I believe that it is produced by the thickening of the mucous membrane extending into the Eustachian tube, or into the tympanum."

The diseases of this part of the ear are classified in the same manner as those of other portions of the organ—malformations, injuries, inflammations, morbid growths, and deposits. The sections devoted to inflammations are particularly worthy of study.

Diseases of the *internal ear* are considered in the seventh chapter. As elsewhere, a minute account of the anatomical structure and arrangements of the parts concerned precedes the pathological inquiry. The subject which appears to receive the largest share of attention is *nervous deafness.*

As has already been shown, Mr. Wilde is strenuous in maintaining that nervous deafness, unaccompanied by organic lesion which is cognizable to our senses, where the Eustachian tube is pervious, the mucous membrane lining

the tympanal cavity healthy, the membrana tympani in a natural condition, and the external auditory canal sound, is rarely met with. And, bearing in mind the lamentable ignorance on the subject of aural pathology with which the profession is so generally chargeable, we must agree with him in thinking that the term in question is commonly used as a cloak for want of knowledge and inability to make an accurate diagnosis.

However, if the absence of organic disease be established, the surgeon must determine whether the seat of the difficulty be in that portion of the auditory nerve which is expanded within the labyrinth, or at some point of its course between its origin in the brain and its exit from the cranium; and whether the paralysis depend upon congestion, softening, atrophy, pressure, or any other of the numerous diseases to which the encephalon is liable. Deafness is sometimes the forerunner of apoplexy, epilepsy, and paralysis, just as amaurosis is.

Mr. Wilde examines carefully the views of Kramer and others upon this subject, and passes in review the various plans of treatment employed. But, upon the whole, we do not find anything very satisfactory concerning this distressing affection, excepting the conviction that it is in the great majority of cases dependent upon some inflammatory or other morbid organic change in the auditory apparatus; and that the treatment should consist in preventing this originally, or in removing it or its effects, according to general pathological and therapeutical principles, if it has already progressed. Any specific treatment for deafness *per se* seems to be empirical.

The eighth chapter is devoted to *otorrhœa*. Although this is not so much a disease as an effect and a symptom of many diseases of the ear, yet, from its great frequency and importance, the author has given it a separate chapter.

From a table, cited already, it seems that about 1 in every 3½ cases (647 in 2,385) presented discharge of the ear as a symptom. Of these, 64 were complicated with polypi; in 55, the membrana tympani was either perforated or destroyed. As is well known, otorrhœa is most common in infancy and youth. The duration varies very much. Of 83 persons, 23 had suffered from a month to a year; 12, from two to three years; 11, from four to five years; 13, from six to ten; and 13, more than ten years.

The symptoms preceding or accompanying the discharge may be those of active inflammation, or they may be more or less wanting, the otorrhœa itself being the most prominent and distressing symptom. The author presents a very graphic picture of a well-marked case, passing from its ordinary to the more aggravated phenomena.

Under the head of the *causes* of this affection, Mr. Wilde says that porrigo, crusta lactea, herpetic, and other eruptions extending to the ear, produce it, particularly in unhealthy children. Mechanical injuries, such as blows or the introduction of foreign bodies, will, no doubt, occasion otitis, and subsequently discharge; but unless in persons of marked strumous cachexia, or very much broken in health, it seldom continues for any length of time, or proceeds to anything serious. Under the head of mechanical injury, has been counted impaction from hardened wax; but the author has never witnessed, nor does he think it likely, from the manner in which it is formed and retained, to cause otorrhœa. He has several times met with cases of otitis ending in otorrhœa, produced by improper use of the syringe, under the supposition that the accompanying deafness arose from impacted wax, where no wax existed. Fevers of every kind, especially the exanthemata, often induce discharges from the ear. Cold bathing, too prolonged, or indulged in too frequently, will also give rise to otorrhœa. Mr. Wilde does not think that syphilis and gonorrhœa are as chargeable with this complaint as has been supposed by some writers.

The morbid alterations of structure, upon which the discharges directly depend, are at first those of simple inflammation of the membrane lining the auditory canal and the membrana tympani. If the ear were carefully examined with the speculum, the tube would probably be found dry, slightly reddened, and tender; the ceruminous secretion wanting or scanty; the membrana tympani deprived of its pearly polish, and slightly pinkish, and red vessels would be discerned in it, coursing along the site of the handle of the malleus. A little later, the secretion of wax would have ceased, the cuticle lining the meatus become thickened and readily detachable in whitish flakes, beneath which would ooze a thin, sero-purulent discharge; the membrana tympani would be found more vascular, the thin pellicular cuticle covering its external surface would be gradually thrown off with the discharge, and then the membrana would look red and villous, like the conjunctiva of the eyelids in catarrhal ophthalmia. Still later, the cuticular lining would have become cast off, the tube converted into a mucoid secreting surface, its walls thickened, and its caliber diminished, the granular state of the membrane increased, and perhaps polypous excrescences would be found springing from the posterior inferior surface of the tube, where the bone and cartilage unite. Finally, the membrana tympani may have given way by ulceration, the middle chamber become opened externally, and some of the ossicula, particularly the incus, may have been discharged. From this period, the disease may still increase in its ravages, even to a fatal issue.

Mr. Wilde criticises severely, but we cannot say unwisely, the common inculcation of physicians, as well as of people generally, which forbids all efforts to "*dry up*" these discharges. He says, after passing in review many of the cases in which bad effects are said to have followed the checking of an otorrhœa: "I have not been able to discover one well-authenticated instance where disease of the head supervened as a consequence of checking otorrhœa, in a case where the condition of the ear had been previously ascertained, and where disease of the bone had not previously existed. Men do not distinguish between the *post hoc* and the *propter hoc;* but, mixing up cause and effect, regard a symptom as a disease."

The *prognosis* must, of course, depend very much upon the cause, severity, and duration of the disease; the extent of the affected parts; the presence or absence of morbid growths; and the age, habits, constitution, &c. of the patient. But, "so long as otorrhœa is present, we never can tell how, when, or where it will end, or to what it may lead."

In the *treatment* of this complaint, Mr. Wilde trusts mainly to the local use of the salts which are commonly employed as collyria, especially to the nitrate of silver in solution; it should be applied by means of a camel-hair pencil, or a piece of soft sponge attached to a probe. The strength of the caustic solution should vary according to circumstances, as in its employment in eye affections, from three to twenty grains of the salt to an ounce of water. The caustic may be applied every second or third day, and in the intervals the ear should be carefully syringed with tepid water, so as to free it from the secretion which collects in it. Moderate leeching should in certain cases be combined with this topical treatment, as also the judicious use of blisters, or other counter-irritants. The constitutional means should depend upon the nature of the case; mercurials, iodide of potassium, cod-liver oil, and the preparations of bark, may be mentioned as the most important. The granulations which not unfrequently sprout from the membrana tympani are best removed by touching them with solid nitrate of silver.

The last topic which we shall notice in this chapter is *polypus*, concerning which Mr. Wilde has written many interesting and instructive pages.

Polypi, says he, are frequent complications of otorrhœa, occurring at every period of the complaint. Their size varies from that at which they readily escape detection, unless the investigator be skilful in his examination, to such as shall entirely fill the external auditory passage. They are always accompanied by discharge, and are frequently its chief cause. In eight cases out of a dozen, they sprout from the site of the ceruminous glands in the posterior wall of the meatus; they usually grow singly; sometimes they are attached by a pedicle, sometimes are seated on a broad base. Some authors, indeed aural surgeons generally, describe a form of polypus sprouting from the surface of the membrana tympani; but Mr. Wilde has never seen such, and thinks that those which have been supposed to be thus seated really sprang from the cavity of the tympanum, and passed through a rent in the membrane, presenting a mushroom-like or expanded head, which spread over the surface of the membrane; such growths, however, can always be lifted from the membrane, and their true source then recognized.

So long as the polypus is still contained within the meatus, they are ordinarily smooth and polished on their surface, and of a florid red colour; but as soon as they appear externally, they become pale, cuticular, and comparatively insensible. In form they may be uniform, or more or less deeply lobulated, botryoidal. Mr. Wilde describes and figures six kinds of polypi, differing in structure, size, shape, and consistence.

To cure them, he recommends their removal by knife or scissors, or preferably by the *snare*. The instruments which he employs are described and illustrated by drawings; the *snare* which he has invented is a beautiful little instrument, and one which, we should think, would accomplish its purpose admirably well. (We may remark, *en passant*, that Mr. Gemrig, of this city, in Eighth Street, has for sale all these instruments recommended by Mr. Wilde, made from the drawings in this book, and from patterns belonging to Dr. Hewson.) After the tumour has been detached, lunar caustic should be carefully applied to the seat of its attachment; this is preferable to any other caustic substance.

In an *appendix*, Mr. Wilde presents an exceedingly interesting essay on deaf-dumbness. His position as one of the *Irish Census-commissioners* not only induced him to direct special attention to this subject, but of course afforded him abundant facilities for investigating it, at least with reference to his own country. And we cannot but say that, so far as we know, this appendix embodies the most complete report on this interesting and pitiful infirmity with which we have hitherto been favoured. Our notice of this volume has, however, already reached a sufficient length, and we will not examine this concluding chapter.

A few general remarks, and we have done.

The uniform good sense and sound discriminating judgment which characterize Mr. Wilde's work, together with the absence of all attempts to throw a veil of mystery over this specialty in pathology, as though it required for its successful cultivation knowledge of a peculiar kind, or some special endowments different from those which enable a man to practise advantageously in other departments of medicine, must of themselves commend this work to the profession; and we entertain no doubt that those who study it will feel, with ourselves, that it is the best guide and assistant in the practice of aural pathology which exists in any language. The general inculcations upon which the author lays most stress are the necessity of instituting a careful and

thorough examination of the ear, both with and without the aid of the speculum; the rarity of *nervous deafness*, as it is commonly called; the important *role* which inflammation, in various forms and grades, plays in aural affections, some traces or evidences of which are observable in the vast majority of cases; and, finally, the necessity of combating or removing the effects of inflammation, in most instances, if we desire to prevent the occurrence of deafness and other more serious results, or of removing them, if they have been already produced.

Dr. Hewson, the American editor, has found his duties light and agreeable. He has not attempted to make many additions, where very few seemed to be needed; an apposite note introduced here and there shows, however, that he has himself been a careful student of the subject. We must say, too, that he has somewhat improved Mr. Wilde's English. In his particular attention to the matter of his book, and amidst the multiplicity of his private and public avocations, the author has suffered many inaccuracies and inelegancies of style and diction to obtrude themselves upon his pages. As an instance, we quote the following sentence—one of many in which the same error occurs: "If this obstruction be complete, and *that* we have reason to suppose," &c.; the editor has very properly omitted the particle which we have italicized. Possibly, Mr. Wilde may regard the correction as a specimen of what the *British and Foreign Medical Review* some years ago facetiously styled "the American variety of the English language;" but if it be so, we honestly think that the child has improved upon the parent. F. W. S.

ART. X.—*Homœopathy: its Tenets and Tendencies, Theoretical, Theological, and Therapeutical.* By JAMES Y. SIMPSON, M. D., F. R. S., &c. Third edition. Edinburgh, 1853: 8vo. pp. 292.

WE have here an octavo volume of nearly 300 pages against homœopathy. Many physicians will be inclined to treat this announcement with the question, *cui bono*—of what use is it thus to make war upon this delusion? For some maintain that it is better to let it entirely alone, and take the broad ground that physicians will better promote the interests of medical science and our profession by quietly pursuing their own course, and treating all quackeries and delusions with silent contempt. And they therefore think that Dr. Simpson and others, who have written exposures of homœopathy, have not only done no real service to science, but have injured both our science and our profession by the notoriety and importance which they have given to this delusion by their attacks.

The number in our profession who hold this opinion we do not suppose to be very large, and yet it is large enough to make it proper for us to examine their views. If they are incorrect, their influence upon the attitude of the profession towards quackery ought to be removed; and if, on the other hand, they are correct, the tactics of medical men in relation to this evil should be materially and almost universally altered.

When errors prevail in regard to any subject, it is commonly deemed important that they should be exposed. If medicine be an exception in this respect, there must be some peculiar reasons for this, arising from the nature

of the subject, or the character of the errors which prevail in regard to it. Let us see, then, what are the alleged reasons for the opinion that errors on medical subjects ought not to be exposed or attacked.

The propriety of letting medical delusions alone, does not seem to be argued from any strong confidence in the power of truth in regard to medicine. Those who hold this view of the subject, do not appear to expect that any of the dupes of quackery will be undeceived by simple presentations of truth; they are, therefore, not only opposed to an exposure of their errors, but the attempt to introduce into their minds any positive truth in regard to medicine is deemed useless. They suppose the victims of medical delusions to be incurable; they consider them as belonging to a class that will have quackery at any rate; a class which have a peculiar mental condition, the removal of which is absolutely essential to a deliverance from their errors. No exposure of their errors, and no presentation of truth, it is thought, can effect this; it can only be done by an entire change of the mental habits.

That there is such a class, we know; and it includes many of the most ingenious and talented minds in the community. It is a class which is made up, to a considerable extent, of thinkers from all the various walks of society, from the illiterate as well as the learned. Those who belong to it do not commonly believe in one delusion alone, but in many; often, they give their credence to all the novelties which come along. The strong believer in homœopathy, for example, is apt to believe to the full in phrenology and animal magnetism, as they are commonly exhibited, in clairvoyance, in table-movings, and even in spirit-rappings.

But this class is by no means so large as is supposed by those who maintain that exposures of quackery are useless. The peculiar habit or cast of mind which characterizes this class is not to be seen, at least to any great extent, in the vast majority of those who are the subjects of medical delusions. This majority is made up of widely various minds, that are attracted to quackery by as widely various considerations; and most of them are only occasional dupes, instead of being fast bound by the spirit of delusion. It is this large *floating* class, as it may be termed, of the patrons of quackery, that can be reached by exposures of their errors, and candid presentations of the truth.

We are fully aware of the difficulty, perhaps impossibility, of redeeming from error those who are fully possessed by the spirit of delusion—a spirit which may well be termed *legion*, from the multiplicity of the errors into which it leads its victims. But it is to be remembered that the possessions are mostly partial, and not full possessions. We would, therefore, make a wise discrimination in selecting the subjects of our efforts. While we would leave the inveterate cases to themselves, we would labour, as opportunity offers, to cast out the devil of quackery from those who are only partially possessed. At the same time, we would make use of the incurable cases as examples to show whither the spirit of delusion tends, in order to induce those who are partially possessed to submit themselves to the proper process of cure.

We have had some personal experience in relation to such efforts with the dupes of homœopathy, and we have found that many of them could be made to see the points on which they have erred, and could thus be delivered from their delusion. We have no doubt that if such efforts were made quite commonly by physicians, in their daily intercourse with the community, the ranks of the patrons of homœopathy would be largely thinned. There are many among them who are in a false position, simply because the subject has not been properly presented to them, and physicians are commonly greatly at fault in neglecting their duty towards such individuals.

It is to be recollected that many, who exhibit a sound judgment on most other subjects, are yet entrapped by delusions in medicine. The reason is, that they are not aware of the peculiar difficulties which beset medical investigations, in consequence of the complicated nature of the subject. Not to go into this point fully, we will only remark that it is an acknowledged principle in regard to evidence, that the more multiplied and complicated are the agencies bearing upon any result, the more difficult is it to estimate the amount of influence of any one of these agencies. In the progress of a case of sickness towards recovery, there are many and complicated agencies at work, in connection with the remedies used; it is therefore difficult to decide upon the exact amount of influence which these remedies exert. Yet the community, and, to some extent, physicians, too, adopt conclusions on this point as hastily as they would in relation to results which are brought about by few and simple agencies.[1] The plain presentation of this point alone, with some appropriate illustrations, we have found to be sufficient to convince many of the falsity of their conclusions in regard to the efficacy of infinitesimals. We have been able to make it clear to them that, as physicians themselves are often deceived in regard to the agency of remedies, as an abundance of facts from the annals of medicine show, much more readily can persons out of the profession be deceived, in the limited range of evidence which comes under their observation in regard to practical medicine.

Such individuals can also be made to see that this failure to apply the rules of evidence aright is the cause of all the wayward beliefs which are afloat in the community in regard to a great variety of subjects. We refer to the credence given to animal magnetism, phrenology, table-movings, &c. The grand difficulty manifestly is, that the rules of evidence are loosely applied to these pseudo-sciences; and the modicum of truth which exists in some of them is not, therefore, sifted from the mass of error with which it is mingled. After developing this point with apposite illustrations, we could show such individuals that the great radical fault of the community, of which we have spoken, is very strikingly and extensively exhibited in regard to practical medicine, mostly because this subject is of so complicated a character.

But, besides these general considerations, there are some special circumstances existing at the present time which call imperatively for the putting forth of efforts on the part of our profession in opposition to quackery. These we will briefly notice.

No one can avoid observing the fact that homœopathy has entrapped many who have not hitherto been given to quackery; and it is chiefly because it comes to them with a more plausible show of reasons than quackery has been accustomed to present. Its pretensions have a more scientific guise, and its appeals to facts are better sustained than the appeals put forth by other forms of medical delusions, simply because it does no positive harm, and therefore does not interfere with the curative efforts of nature. Neither can it fail to be seen that quackery, as a whole, has appeared in these latter days with a different phase from any which it has formerly assumed. Hitherto, though sometimes monstrous, it has never been as formidable as now; its tactics were never as abundant and complicated, and as shrewdly managed as at the present time; it never before waged a systematic and prolonged warfare against the medical profession. Now we have various sects; the homœopathists, the eclec-

[1] If the reader would like to follow out this subject, he will find the views of the writer of this article in an article on the Nature of Evidence in Practical Medicine, in the *New Englander*, for November.

tics, the hydropathists, the Thompsonians, &c., all united in an onset upon what is called "regular medicine," and the nostrum-mongers join in the general hue and cry.

There is little respect now, on the part of the people, for authority in medicine. Formerly, although there was much running after popular quackeries, as they came up one after another, still, the medical profession was considered, on the whole, as the repository of most of the valuable experience which had been gathered in relation to medicine. Regularly educated medical men were therefore, for the most part, relied upon, at least by all the intelligent. But now it is far otherwise. Quite a large part of what is ordinarily considered the intelligent portion of society has, in some communities, swelled the ranks of the patrons of quackery. It is true that they are sometimes the followers of educated men—perhaps renegade members of our profession—but they are certainly far from being as scrupulous in regard to the evidences of education as they are in the selection of a lawyer or a clergyman. Shallow and illiterate men are often seen duping the intellectual and learned, as well as the ignorant wealthy and the fashionably refined. Especially is this the case if there be a foreign accent, long hair, and references to an European diploma, which, however, is never exhibited, and, if inquired for, is stated to have been lost. Even where the show of regard to education is made, the tendency evidently is to obliterate the distinction between educated and uneducated men in medicine.

With this state of war upon the medical profession, and this disregard of authority in medicine, there is a strong disposition in the popular mind to dabble with medical subjects, and to utter its opinions on them with the greatest freedom and the most positive assurance. The community is all astir on these subjects, and they furnish prominent topics of conversation in all circles. The merits of remedies, and modes, and doctrines, and physicians are canvassed freely, and positive conclusions are arrived at with a facility which would be only warrantable if medicine were a perfectly simple and uncomplicated subject; and as various systems are claimants for the public favour, there is a singular medley of opinions in the popular medical mind. Sometimes the most incongruous opinions and practices may be observed in individual cases. The firm believer, for example, in the *sole* law of Hahnemann, may be seen subjecting himself to the administrations of Priessnitz, not dreaming that there is any inconsistency in such a course.

While all this is going on in the community, there is quackery in the profession itself. Homœopathy even is among us. Although the profession has generally taken proper action on this subject, and excluded from its ranks those who have adopted this delusion, in some quarters this has not been done. In the State of Massachusetts, there are avowed homœopathists, who are in good standing in the State Medical Society. Whether it is so in any other State we are not informed. In Connecticut, physicians who become homœopathists are expelled from the Medical Society, and we believe this is the general practice throughout the country. In Great Britain, the evil, so far as we can learn, is worse than it is in this country; even some high places in the profession are occupied by homœopathists, as, for instance, the chair of practical medicine in the University of Edinburgh, by Dr. Henderson. The profession, however, has no control over such a post, and it is proper to state that, as a body, they have in Edinburgh taken decisive action in relation to homœopathists.

But homœopathy is not the only quackery that exists within our own ranks. The quackery which is now so common in connection with certain specialties

shows an alliance to homœopathy in its tactics, and in the character of its appeals to the popular favour.

The influences, then, which are at work, both in and out of the profession, indicate most clearly the necessity of some positive neutralizing influences on the part of the honourable and the true among medical men. We believe that the present state of things is not to continue long; that society is in a sort of transition state in regard to medicine; and that the manner in which it shall come out of the medley of opinions which now agitate it, will depend very much upon the influence which shall be exerted upon it by our profession. Our duty, therefore, plainly is, to mould as we can the views and opinions of intelligent men, and through them affect the masses that are guided by them; and, in order to do this, we must enlighten them as to the causes of their errors. If this be done, it will strike an effectual blow at the quackery which is in the profession, as well as that which is out of it.

Let us not be understood to mean that the whole profession must engage in a general onslaught upon quackery. We are not in favour of either frequent or ill-natured attacks upon any form of it, however ridiculous or provoking it may be. We only argue for candid expositions of medical errors, both in private and in public, when proper opportunities offer themselves. We would have no one step aside from the duties of his profession to seek for such opportunities; we would only ask him not to neglect them as they fall in his way.

Let us suppose, now, that Dr. Simpson, Dr. Holmes, and others who have written exposures of the fallacies and the falsehoods of which homœopathy is made up, had never written a word on the subject, what would have been the consequence? Not only would homœopathy have been more abundant than it now is in the community, but it would have made greater inroads upon the profession itself. Very few of those who have left us to become homœopathists have done so from a real conviction of the truth of the "sole law" of Hahnemann. The great majority of them have given up both science and honour for the sake of gold; and the temptation, we fear, would have proved too strong for many more, had not argument and wit been so successfully employed in exposing this delusion.

We propose now to glean from the book of Dr. Simpson some things which may assist the reader in putting forth the efforts which we recommend. In doing so, we shall have special reference to those points on which even intelligent men very commonly err in relation to the character and claims of homœopathy.

It is very often said to physicians, by the dupes of this delusion, "I see that you are getting to be a little homœopathic, for you often use very small doses, and, on the whole, give little medicine, compared with what was commonly used by physicians some years ago." They who use this language, though often very intelligent persons, do not appreciate the difference between small and infinitesimal doses. They need to be enlightened on this point, and it is very easily done. We have been occasionally amused at the effect produced on the minds of believers in homœopathy, by statements and calculations in regard to the minuteness of the little doses.

That the reader may have the means of meeting such cases, if he has them not already, we will quote an explanatory table of dilutions from our author. We will premise a description of the process of making the dilutions or attenuations, which we take from Hahnemann's *Materia Medica Pura*:—

"To obtain the hundredth degree of potency, mix two drops of alcohol with equal parts of the juice of the plant, and then mix this with ninety-nine or one hundred drops of alcohol, by means of two strokes with the arm from above

downwards; by mixing in the same way one drop of this dilution with one hundred drops of alcohol, you obtain the ten-thousandth degree of potency, and by mixing a drop of this last dilution with another one hundred drops of alcohol, you obtain the millionth degree. This process of spiritualization or dynamization is continued through a series of thirty phials up to the thirtieth dilution."

Substantially the same plan is pursued with other forms of medicine, as well as the juice of plants. Now for the table:—

"*Table showing the quantity of alcohol or fluid required to dissolve one single grain or drop of a homœopathic drug (as sulphur, aconite, etc.) down into the following homœopathic attenuations or dilutions.*

No. of attenuation, dilution, or potency.	Relative quantity of the drug, and of the quantity of alcohol in which it is dissolved in each attenuation.
1st Attenuation.	—One grain, or drop, in one and a half teaspoonfuls of alcohol.
2d Attenuation.	—One grain, in twenty-one fluidounces of alcohol.
3d Attenuation.	—One grain, in two thousand and eighty ounces; or in one hundred and four pints of alcohol.
6th Attenuation.	—One grain, in thirteen million gallons; or in two hundred and six thousand hogsheads; or in fifty-one thousand tuns of alcohol.
9th Attenuation.	—One grain, in a lake of alcohol with a volume of about fourteen cubic miles; or in a lake of fifty fathoms in depth, and presenting two hundred and fifty miles of square surface.
12th Attenuation.	—One grain, in a sea containing about fourteen million cubic miles of alcohol; or in a quantity of fluid equal to a sea six times the size of the Mediterranean Sea.
15th Attenuation.	—One grain, in an ocean of fourteen billion cubic miles of alcohol; or in an ocean about forty-six thousand times greater than the whole waters contained in all the oceans of the earth.
24th Attenuation.	—One grain, in an ocean of fourteen quintillion cubic miles of alcohol; or in a quantity sufficient to make one hundred and forty masses, each filling a sphere extending from limit to limit of the orbit of the planet Neptune.
30th Attenuation.	—One grain, in an ocean of fourteen septillion cubic miles of alcohol; or in a quantity sufficient to make one hundred and forty billion spherical masses extending from limit to limit of Neptune's orbit; or in a quantity equal to many hundred spheres, each with a semi-diameter or radius extending from the earth to the nearest fixed star." (P. 285.)

On this, Dr. Simpson remarks:—

"This thirtieth or last of these attenuations or dilutions is, according to Hahnemann, the most appropriate dose of every drug in every disease. For we have already found him strongly and solemnly declaring that 'it holds good, and will continue to hold good, as a homœopathic therapeutic maxim, not to be refuted by any experience in the world, that the best dose of the properly selected remedy is always the very smallest one in one of the high dynamizations, X (or the 30th dilution), as well for chronic as for acute diseases.' Now, this 30th dilution, which Hahnemann thus asserts as indubitably '*the best dose*' of all drugs for chronic or acute diseases, consists of a decillionth of a grain of the drug used; or, in other words, it consists of a minute globule of sugar, moistened by being simply dipped in a drop out of an ocean of fluid one hundred and forty billions (or 140,000,000,000,000) times as large as our whole planetary system, and which enormous ocean has been medicated for the purposes of homœopathy, by having dissolved and mixed through it *one single grain* of the appropriate drug." (P. 286.)

The sugar globules, so much used, are medicated by merely being touched with the moistened stopper of the phial containing the dilution. The amount of moistening might differ, we suggest, in different cases; but this has never troubled the mind of any homœopathist, nor need it do so, as it will make no manner of difference in their efficacy.

The "dilutions," or "attenuations," or "potencies," or "dynamizations" (which are synonymous terms), included in the table above, are divided into four series, which are thus given by Hempel, one of the standard homœopathic authors:—

"1. 'The LOWER potencies or preparations range from the original forms of drugs (tinctures, or primitive chemical, vegetable, mineral, or metallic substances) up to the 6th attenuation.'

"2. 'The MIDDLE potencies (range) from the 6th to the 30th attenuation.'

"3. 'The HIGHER potencies, from the 30th to the 200th.'

"4. 'The HIGHEST potencies, from the 200th to any attenuation above that number.'" (P. 279.)

But this is not the end of the dilutions. One would suppose that the *ultima thule* must be reached in the thirtieth potency; but no. Dr. Simpson quotes from prominent homœopathists statements of *undoubted* effects and cures from the 100th, the 200th, and even up to the 2,000th dilution. "To represent the 200th dilution," says Dr. S., "would require a 1 followed by 400 ciphers; and to represent the last of these dilutions would require more ciphers than our printer's font possesses." If what a prominent homœopathist says is true, that "the *less* material the medicine becomes the *more* efficacious it proves," we think that the homœopathists had better go still farther with their attenuation, and get, if possible, still nearer to nothing than they have done; of course, being careful to dynamize each dilution with the "two (just two) strokes with the arm from above *downwards*," prescribed by Hahnemann. One chemist, more adventurous than the rest, has stretched far ahead of them all, and produced a 40,000th dilution of arsenic. How many ciphers it would take to express this we will not try to reckon; much less what minute fraction of a grain would be used up if all the inhabitants of the earth should take from this dilution such a dose as a homœopathist would prescribe.

In a Homœopathic Congress (curious word to apply to such an assemblage), this *small* subject was largely discussed. Some of the members were very positive as to the "very remarkable effects" of the higher dilutions, and claimed for them "a more brilliant and signal success" than is realized from the lower, that is, from the 30th downward. The chairman of this wise congress, the erudite Professor Henderson, who, from his station in the University of Edinburgh, is regarded as the Magnus Apollo of homœopaths in the mother country, did not deny the efficacy of the high dilutions spoken of; but he thought that "there was a total want of evidence of the high dilutions being more potent than the low." And he remarked that "the one fact is *very gratifying*, that from 30 downwards we have *ample* evidence that the medicines do produce curative effects. The only subject of inquiry is, what point is best? They all do produce an effect, but the difficulty arises from the very fact that they all do produce an effect. But the fact that all dilutions, *from* 30 *downwards*, *will* produce an effect, seems to me established by the experience of ALL." Dr. Black seemed to have great pity for the benighted ignorance and prejudice of us "allopaths," for though he held "that high dilutions did cure, and cure well," he urged the employment of the lower dilutions, in order to remove "the prejudices their allopathic brethren had against them on account of the infinitesimal doses." We fear his considerate pity will not avail; for,

to a dull "allopathic" intellect, when it tries to grasp a thing so near nothing as the 30th, or even a lower dilution than that, anything higher would be all the same. In order to appreciate such differences, the mind itself must first be diluted, attenuated, and dynamized, and by *downward* strokes, too.

But these dilutions are efficacious, not only when swallowed, but when *smelled*, also. This mode of administration Hahnemann has dignified with the name of *Olfaction*, for the same reason that the gathering of homœopaths was called a Congress. The *small doses* seem to have engendered a liking for *large words*, and, we may add, *large fees*, too. On this mode of administration of the dilutions, Dr. Simpson remarks:—

"Most men would have supposed that Hahnemann had severely enough taxed the credulity of his followers, when he thus advised them to give their patients in all cases and diseases, both acute and chronic, the drugs which they used in these very infinitesimal doses. To propose to cure all diseases by a *single grain* of the required drug divided among such an infinity of globules, or dissolved in such an enormous ocean, was, one might, *à priori*, suppose, carrying human credulity as far as it would go. In the later periods, however, of his life, and as his 'experience' accumulated upon him more and more, Hahnemann used his infinitesimal decillionths in a still more infinitesimal manner than that. For latterly, he came to recommend his decillionth globules to be *smelled* merely, and not *swallowed* by his patients; and he averred that this smelling or OLFACTION of them was all that was requisite to produce the desired cure." (P. 61.)

And the "medicinal aura" emitted from dried globules, it seems, it takes a long time to exhaust. For Hahnemann says: "A globule, of which ten, twenty, or a hundred weigh a grain, impregnated with the 30th potentized dilution, and then *dried*, retains for this purpose (of olfaction) all its power undiminished for at least eighteen or twenty years (my experience extends this length of time), even though the phial be opened a thousand times during that period, if it be but protected from heat and the sun's light."

He gives particular directions about the management of this delightfully easy and convenient mode of dosing. He says that in little children, the orifice of the phial containing the wondrous globule "may be applied close to their nostrils whilst they are asleep, with the certainty of producing an effect." In what delightful contrast is this to the nauseous doses with which the horrid "allopaths" *punish*, as the Irish say, the little innocents of the nursery! Whether the homœopaths in this country have introduced to any extent this refinement, we have not learned; but, if they have not, we think them quite remiss, for the efficacy of the smelling of globules rests on the same *undoubted* evidence with that of the swallowing of these doses. Many facts are cited in proof of the efficacy of olfaction. Dr. Crosiero, of Paris, asserts that Hahnemann cured his wife by it of a violent pleurisy in five hours. Dr. Gross is so satisfied of the efficacy of olfaction, from *undoubted* facts, that he often makes a patient wait "for weeks or so" before taking a second smell, and it is not seldom that he finds that one smell is sufficient for the cure. In fact, he cured his horse of the staggers by making him smell of the 200th dilution of cocculus!

Hahnemann states that "if a dyspeptic, with eructations, depression, cold feet, &c., smell only once a globule of pulsatilla of a high dilution, the derangement of his health in general, and of his stomach in particular, will certainly be removed; in two hours [precisely two, we suppose] he is *quite* well." He also states that a grain of the quintillionth dilution of gold, "put into a small clean phial, will restore a morbidly desponding individual, with a constant inclination to commit suicide, in less than an hour, to a peaceful state of mind, to love of life, to happiness, and horror of his contemplated act, if he perform but a *single* olfaction in the phial, or put on his tongue a quantity of this pow-

der no bigger than a grain of sand." *Of course*, he would not assert this unless he had seen it often done, "in less than an hour," by both these modes of administration.

"But what in reality," asks Dr. Simpson, "is the quintillionth trituration of a grain of gold—a single olfaction of which, Hahnemann, in the preceding paragraph, declares to be capable of restoring a morbidly desponding individual to a peaceful state of mind, etc.? To reduce a single grain of gold, in accordance with Hahnemann's own rules, to the quintillionth trituration, a mass of sugar, not only higher and broader than the entire range of the Alps, or of the Andes, or of the Himalayas, but as large, at least, as FIFTY globes or worlds the size of the entire earth, would be required. Yet Hahnemann avers that one single grain of gold, distributed duly and equally through such an inconceivable mass, or series of masses, of sugar, would invest every single grain of these masses, taken and put into a small clean phial, with a power of restoring 'a morbidly desponding individual, with a constant inclination to commit suicide, in less than an hour, to a peaceful state of mind, to love of life, to happiness, and horror of his contemplated act, if he perform but a *single* olfaction in the phial.'

"It is easy to estimate the medical value or valuelessness of such a dose, given either in the way of olfaction or otherwise. It may be more difficult to estimate the *pecuniary* value of such a prescription. But perhaps most sane minds will hold, that a due appreciation of the billion-worth of such a homœopathic dose by olfaction, was formed by a patient mentioned by the editor of the *Pharmaceutical Journal*. 'We have heard (says he) of a lady who, having been subjected to this process (the administration of a homœopathic dose by olfaction) by her homœopathic doctor, passed the fee before *his* nose, and then—replaced it in her pocket.'"

Among the different vagaries of homœopathy it is asserted by some that doses of all kinds, from the common doses of "regular medicine" up to the higher attenuations of Hahnemann are required, *according to the various susceptibilities of different patients.* This is given as an apology for the use of ordinary doses, which is getting to be now very common among homœopaths. But no one but a homœopath can see how there can be such a wide difference of susceptibility, that one patient must have a good round dose, such as vulgar "allopaths" give, while another is sensibly affected by the 30th, or the 2,000th dilution, or even a simple sniff from a phial containing a solitary globule from which a thousand effectual sniffs had been already taken. And none but a homœopath can see how this dogma can be shown to be consistent with that other dogma, so commonly received, that attenuation communicates a power to medicine which enables it to act readily on disease in all grades of susceptibility. We know that the disciples of Hahnemann can see a great deal more than common folks can, and so we suppose that they can see through these difficulties, though they are certainly puzzling to us. It is too strong meat for such babes as we are.

There is a great deal of dishonest use of ordinary remedies—that is, cures are attributed to homœopathic doses when they are secretly effected by ordinary doses. This is easily done with those remedies which occupy but little space, such as morphia, strychnia, arsenic, antimony, calomel, &c. The facts which occasionally leak out, constrain us to say, that we believe *the homœopathic practitioners who are not guilty of this base fraud, are comparatively few in number.*

Dr. Simpson cites many cases of this fact. The case of the Duke di Cannizzarro, who died some years ago, from a fraud of this kind, is of the most glaring character. He was taking what he supposed were infinitesimal globules, but they in fact contained each a large dose of strychnia. He thoughtlessly took three of them at once, and died in two hours. As this case made con-

siderable noise at the time, a homœopathic writer replied to the attacks on the other side, that the case only proved that there was power in globules, as an overdose was so potent as to kill a man. This assumption, that there was no fraud in the construction of the globules, shows the most cool and impudent dishonesty on the part of this writer. We have known a case in this country, in which the life of the patient came near being lost from the administration of the same remedy by a prominent homœopathist in one of our cities.

A case is quoted by Dr. Simpson, from Dr. Alfred Taylor's work "On Poisons," which is so interesting that we will give it in full:—

"A lady of this metropolis consulted a homœopathic physician, who had acquired *great repute* as an advocate of the system of infinitesimal doses. He prepared and gave to her some small white powders, with explicit instructions in writing as to the mode of taking them, and the nights on which they were to be taken. She took, as I was informed, two; and on each occasion she suffered from great stupor, and all the symptoms of narcotic poisoning, followed by diarrhœa. A suspicion arose that the powders contained some very active ingredient; and three of them were sent to me for analysis. It was first ascertained that, although in appearance, and from the directions, they were intended to pass as equally divided doses of the same medicine, they differed greatly in weight. The first weighed 3.4 grains; it consisted of calomel and morphia, the latter being in the proportion of *one grain*. The second weighed 1.5 grains: it consisted entirely of *sugar of milk* (or some innocent analogous sugar), and contained no morphia, nor any mineral matter. The third weighed 2 grains; it was composed of calomel and morphia, the latter forming about one-fourth the weight, or half a grain. The cause of the alarming symptoms was at once explained. It will be perceived, from the analysis, that the powders differed from each other in weight by more than one-half; and that the first contained *a dose of morphia which might have proved* FATAL, *had it been taken according to the written order;* while the second was an innocent powder, of which a person might have swallowed an ounce with impunity, and yet it was less than half the weight of the really poisonous powder. The third contained a full dose of morphia. The quantity of morphia which the patient took cannot be conjectured, as the doses of morphia in the remaining powders followed no regular rule; but it appears to have been sufficient to destroy her confidence forever in infinitesimal doses! This case, while it shows in an unexpected way the gross deception practised on the public, and the risk of life which must be incurred by such a reckless mode of prescribing, affords a hint of some value to the medical jurist. Let us imagine that the patient had taken the powder containing the grain of morphia, and had died from its effects, and that only the second of the powders, with the written directions, had been forwarded to a chemist for analysis; this would have been found to be sugar of milk, a substance which could be productive of no mischief. Had a charge of manslaughter even arisen, there would have been an admirable ground of defence in the allegation, that the unfortunate deceased had died of apoplexy; for it would have been argued, she could have taken nothing but sugar of milk, with perhaps a harmless decillionth dose of some homœopathic medicine! The prescriber, under these circumstances, would probably have been triumphantly acquitted."

In truth, the strict principles of Hahnemannism are getting to be not only secretly but often openly given up by those who proclaim themselves homœopathists. Dr. Cormack remarks that, "so ill disguised of late has been the want of accordance between their principles and their practice, that homœopathy has become in England nothing more than a conventional appellation for a very clever quack system." "A good many patients," he says, "have come to me from homœopathic doctors; and I have thus discovered that even the commonest and the coarsest of the "ordinary" means of cure are habitually used by them. Castor-oil and aloes are advised in the ordinary doses; camphor is given in very large doses in the same circumstances in which I would administer it;

croton oil is used as a counter-irritant; cod-liver oil is relied on in some forms of phthisis; and in several cases of disease I have actually found that, with the globules, hydropathy and mesmerism were had recourse to. There is nothing here stated but what I can prove to be true."

Dr. Simpson remarks that on this subject—

"To avoid using, in appropriate cases, the ordinary forms of medicinal sudorifics, aperients, emetics, etc., in their ordinary doses, some practitioners of homœopathy have recourse to every kind of possible means, in order to produce these actions and effects by other than medicinal measures; such as steaming and poulticing their patients in bed, and giving abundance of fluids to produce diaphoresis; throwing large enemata into the bowels; tickling the fauces to induce vomiting, etc. The same class of practitioners, and other homœopathists, occasionally also, and more especially of late years, affect little or no scruple in using, in acute and other dangerous cases, so-called allopathic drugs in their common doses. But then they employ them with a protest, and under the imposing name of 'auxiliaries.' In other words, when their patients require no very active treatment, or no treatment at all, the infinitesimal globules are gravely and assiduously employed, with proper regimen and diet; but when a case, or a period in a case, comes to present actual danger, from the evident omission of medicinal treatment, an allopathic purgative or other appropriate allopathic medicine is employed under the term of an 'auxiliary.' In all these cases—according, at least, to the creed of such practitioners and their patients—it is the infinitesimal drop or globule that actually *cures* the disease; while the allopathic drug is only (in their language at least), a palliative or an 'auxiliary' to the homœopathy. It is an auxiliary, however, in most such cases, exactly in the sense in which it was used by the braggart drum-boy, when he vaunted that *he* himself had defeated the French army at Waterloo—though he allowed at the same time that for this purpose he had incidentally used the English cannon, cavalry, and troops, as his 'auxiliaries' in the work."

These and other facts clearly show that homœopathy, like its coarse and despised sister, Thompsonism, is losing gradually its exclusive character, and in a little time it will be so mixed up with other delusions, and will take to itself so many measures and practices from other sources, that it will hardly exist in name. This merging process, we remark in passing, may be seen in every system or mode, whether it be promulgated in or out of the profession.

This degeneration of homœopathy was a sore thing to Hahnemann, especially the conjoining with it of the old practice, which he so bitterly denounced as "founded mainly on conjecture and false deductions, mixed up with falsehood and fraud," and as employing "medicines capable of producing, God knows what, morbid state." He deplores, therefore, in mournful strain, the folly of those who make such an unhallowed mixture of the *sole* cure with so-called "auxiliaries," and says, "My true, conscientious followers, the pure homœopathists, with their successful, almost never-failing treatment, might teach these persons better." Alas! if he lived at the present day, where would he find "true, conscientious followers, *pure* homœopathists?"

The intellectual and moral tendencies of Hahnemannism furnish a curious chapter of its history. We know of nothing which shows so strikingly the ridiculous lengths to which human error can go. We will not detain the reader with any extended view of the grotesque and fantastical follies of Hahnemann and his followers. We will only give a specimen or two.

The first, we will give in Dr. Simpson's own words:—

"During the past year, a sermon was preached in London by a clergyman of the Church of England, the Rev. Thomas R. Everest, Rector of Wickwar, Gloucestershire, in aid of the Hahnemann Hospital; and has been subsequently published. The sermon is replete with Hahnemannic theology, as well as

Hahnemannic medicine. The reverend author, who boasts of 'some years of intimacy' with Hahnemann, conceives it was not likely that 'the sacred pages of the word of God should be *quite silent* on the subject' of the discoveries which his friend imagined he had made some nineteen centuries afterwards. And accordingly, he finds they are not "silent." One of Hahnemann's supposed highest and greatest generalizations in pathology was, the dogma or doctrine that about seven-eighths of all the chronic diseases of the men and women of this and other ages were the result of the unobserved and unknown presence of *Psora*, or (to use its plain English synonym) itch, and were to be cured by the remedies capable of curing itch. But, argues the Rev. Rector of Wickwar, our Saviour actually meant the cure of itch (that fertile source of human disease and suffering), when he issued 'the solemn command to his disciples,' '*cleanse the lepers*' (Matt. x. 7, 8), the leprosy of the New Testament and the *psora* or itch of Hahnemann being, according to Mr. Everest's own grand discovery, quite identical.

"'Irreligion (maintains Mr. Everest) is the daughter of internal disorder,' or disease; but 'the old system' of medicine did not properly remove disordered action, and hence 'was (to use his own words) of no use or value as an aid to conversion;' whilst he conceives that by appropriate homœopathic treatment, clergymen may expect to obtain great assistance in their spiritual work among their flocks. If the psoric taint were completely eradicated, the consequence, he maintains, would be, that 'the holy and saving truths of the gospel then will be admitted into the heart, and *never* fail, then, to influence the life.' Without, in short, stating it in as many words, Mr. Everest—amidst much characteristic verbiage and declamation—conveys to the minds of his readers the idea that sin, or at least man's persistence in sin, and repulsion of gospel truth, is the result of the innate *physical* deformity or disorder of the human body, rather than the result of the innate *moral* deformity and wickedness of the human heart, or of both combined; but farther, this physical disorder—consisting, as it does, merely of *psora* or itch and its consequences—is removable by appropriate medical anti-psoric treatment; and he believes that the reception of divine truth for conviction and conversion may, and should, be artificially promoted by globulizing homœopathically, children and others, not '*when* people are sick, but *before* that,' for thus (again to use his own words) by a 'continuous [homœopathic] treatment, begun in childhood, we may hope to anticipate disorders, to restore harmony, to combat the internal *psoric* tendencies, and to procure a patient hearing and kindly reception of spiritual ministrations.' . . . . . 'When the old system (of physic) 'shall have quite vanished from the earth, and the new one (homœopathic) shall be established, *then, for the first time*, will the gospel of the kingdom of grace be preached as Jesus ordered it to be preached, and received as God intended it to be received.'"

So, then, according to Mr. Everest, the great obstacle to the success of the gospel lies in the fact, that people are not duly prepared for the reception of it by the use of anti-itch globules. Let all the world go to swallowing these, and the world's conversion will soon be accomplished.

Now this Mr. Everest, a clergyman of the establishment, is a great man among the homœopathists.

"The day after this sermon was preached," says Dr. Simpson, "the managers and friends of the Hahnemann Hospital, and some of the principal homœopathists of London, dined together, under the presidency of Lord Grosvenor. And at this dinner, Mr. Everest's sermon was publicly declared to be a 'giant addition to the homœopathic literature of this country. (Cheers.)' A few days afterwards, the editor of the *Homœopathic Times*, in a long and laudatory review of Mr. Everest's sermon, observes: 'His admirable discourse in respect of logic was faultless; sometimes grave in censure, sometimes severe in Christian simplicity, sometimes thrilling in pathos. *In short, it was a great achievement.* The discourse must, of course, be forthwith published; and we trust it will be distributed by tens of thousands.'"

Dr. Mure, who is styled in the *British Journal of Homœopathy*, the "Apostle of Homœopathy," it seems has discovered the true remedy for psora or itch, so that Mr. Everest may expect the speedy conversion of the world, that is, if people will be willing to take the remedy, which may be doubtful unless the nature of it be kept secret from them. The remedy is the *pediculus capitis*, or the human louse; and Dr. Mure says that he announces the discovery with "a feeling of inward satisfaction." He found that doses of louse-tea were capable of creating 283 different symptoms in the stomach, head, chest, bowels, skin, &c. Our lady homœopathists, who have such delicate nerves and stomachs, will bear in mind that of course the louse-tea is subjected to the usual dilution, and therefore they need not be startled. According to the process as detailed by Hahnemann, one *little* louse would suffice for all the inhabitants of the earth in all time, to cure them of the itch, and therefore, according to Mr. Everest, to secure their conversion.

Dr. Simpson states that Dr. Hering, one of the most noted of American homœopathists, recommends "bugs in the 30th dilution," for curing inflammation arising from the bites of bugs.

One more extract, and we are done with the follies of homœopathy:—

"The homœopathic list of drugs includes a number of medicines that possess (at least according to the homœopathists) the power of producing, and hence, on the principle '*similia similibus curantur*,' of curing various moral and religious symptoms and states. Thus, according to Jahr (vide *Manual of Homœopathic Medicine*, vol. i.), the great anti-psoric remedy, SULPHUR (p. 563), produces in a healthy person, and hence will cure in a diseased, the feeling of 'Despair of Eternal Salvation;' LYCOPODIUM (p. 337) possesses the same property; a dose of PULSATILLA (p. 468) produces 'Despair of Eternal Happiness, with continual praying,' 'hymns, and Devout Aspect;' LACHESIS (p. 310) produces, and hence should cure, 'Absence of Religious Feeling, and fear of approaching death;' a small dose of GOLD, taken internally, produces 'Excessive Scruples of Conscience,' and 'Despair of One's self and others;' VERATRUM produces 'extraordinary taciturnity, with Oaths on the slightest provocation,' and 'Raving about Religious Matters;' ACONITE (p. 3) produces 'an irresistible desire to Blaspheme and Swear,' and 'a sensation as if the mind was separated from the body;' ANACARDIUM (p. 33) produces the same swearing symptoms, and 'absence of all Moral and Religious feelings' (vol. ii. p. 155); a dose of common COLOCYNTH (an ingredient in an allopathic pill which most people have repeatedly swallowed) produces (says Jahr, p. 189) 'want of all Religious Feeling,' &c. &c. &c."

(P. 30, *note.*)

We must be indulged in one more extract, which has just met our eye, before we leave this subject. It is an extract containing some specimens of provings from a book published in London, by the "HAHNEMANN PUBLISHING SOCIETY," on the symptoms derived from the "Disposition, Mind, and Head:"—

"'Delusion that he is flying' (produced by CAMPHOR). 'Delusion that he is riding an ox' (produced by BELLADONNA). 'Delusion that he is a hunter' (produced by VERATRUM). 'Delusion that he is a commanding officer' (effect of a dose of COPPER). 'Delusion that he gives the word of command' (effect of BELLADONNA). 'Delusion that he has a large business' (effect of PHOSPHORUS). 'Delusion that he possesses fine clothes' (effect of SULPHUR). 'Delusion that he is a goose' (effect of CONIUM). 'Delusion that he is a child' (effect of CICUTA). 'Delusion that he has old chairs to mend' (effect of COPPER). 'Delusion that he has greens for sale' (effect of COPPER). 'Delusion that he is driving sheep' (symptom of ACONITE). 'Delusion that his head is larger' (symptom of ZINC). 'Delusion that his head is transparent, and that his nose is transparent' (effects of BELLADONNA). 'Delusion that his stomach is devoured' (effect of SABADILLA). 'Delusion that his legs are cut off' (effect of BARYTA). 'Delusion that his fingers

and toes are cut off' (symptom of MUSK). 'Delusion that his feet are in his brain' (effect of AMPHISBŒNA). 'Delusion that he is killed, roasted, and being eaten' (a symptom of STRAMONIUM). 'Delusion that he is about to be married' (symptom of HENBANE). 'Delusion that he is pursued by evil spirits, and that a dog is biting him' (effect of STRAMONIUM). 'Delusion that thieves are in the house' (symptom of ARSENIC). 'Delusion that men are swine' (a symptom of HENBANE). 'Imaginary vision of cats' (an effect of ÆTHUSA). 'Imaginary vision of rabbits' (effect of STRAMONIUM). 'Pretending to crack nuts' (symptom of HENBANE). 'Pretending to count money' (symptom of BELLADONNA). 'Pretending to drive away peacocks' (a symptom of HYOSCYAMUS). 'Eats his shoes' (an effect of VERATRUM). 'Tries to climb up the stove' (effect of HENBANE). 'Dancing in the churchyard' (a symptom of STRAMONIUM). 'Inclination to pull people's noses' (a symptom produced by MERCURY), etc. etc. etc." (Pp. 76, 77, *note.*)

It is often said by the patrons of homœopathy, in reply to statements in regard to the follies and fallacies of this system, "I care not how ridiculous you can make homœopathy appear, if it cures, it is all that I want." And it seems to be supposed by a large portion of the community that physicians are less disposed to meet it on this ground than on any other. It is taken for granted, almost, that physicians reject homœopathy merely because it does not tally with the doctrines and notions which they have been accustomed to maintain, and by which they have been governed in their practice, and not at all because they have any really practical evidences against it. But this is not so. Let the homœopathist show us that infinitesimals do cure, and we will adopt them at once. The bare fact that many patients get well while taking them is a different thing, for this happens with all sorts of measures and remedies, even the worst, simply because other agencies besides remedies have an influence in effecting the recovery, and chiefly the *vis medicatrix naturæ.*

It is from a disregard of the necessary distinction just referred to that the reputation for success in curing disease has been so easily achieved by every species of quackery in all time. On this subject, Dr. Simpson remarks:—

"'*Pure experience* (it is averred and argued by Hahnemann) is the only, the infallible oracle of medicine,' and the 'idle declamations (of opponents) must cease before the dicta of infallible *experience.*' In this strain, in former times, Bishop Berkeley strenuously, and apparently soundly, argued regarding the universal curative effect of Tar-water; so argued Dr. Solomon, regarding his Balm of Gilead; Mr. Perkins, regarding his Metallic Tractors; Dr. Morrison regarding his Pills; Mr. Lee regarding the effects of the internal and external use of Brandy and Salt, &c. &c. In the present day, we have exactly the same proof of 'infallible *experience*' everywhere as earnestly and anxiously repeated—by Dr. Dickson, regarding the results of his Chronothermal treatment; by Mr. Coffin, regarding his courses of Lobelia, &c.; by Ling, regarding the cure of all diseases by rubbing and movements; by Priessnitz, regarding the cure of all affections by the internal and external use of cold water; by Luz, in relation to the treatment of all diseases upon the Isopathic principle, '*æqualia æqualibus curantur*'—the same is cured by the same; by Hahnemann, in relation to the treatment of all diseases upon the homœopathic principle of '*similia similibus curantur*'—like is cured by like. The promulgators, pupils, patrons, and patients of each of these diverse universal systems of cure, are, like Hahnemann and his followers, all equally ready and equally entitled to appeal to the results of 'pure EXPERIENCE as the only, the infallible oracle' and criterion of the particular medical doctrine, and exclusive mode of cure, which, for the time being, they severally and zealously happen to favour and follow.

"To decide amidst so many very strong and yet very opposite asseverations may not always be an easy task for trusting and credulous minds, and particularly with those who are unacquainted with the nature of medical evidence. Indeed, with the non-medical public the difficulty of distinguishing what is a

cure by nature alone, and what is a cure by nature assisted or controlled by art, makes up the sum of the difficulty of distinguishing between true and spurious medical treatment. And in solving this problem, it is far too frequently forgotten that men labouring under disease, even the most acute, and consequently much more so when suffering under slighter ailments, do not as a general rule die, even when totally and entirely left without any medicinal treatment whatever. When reasoning on the efficacy of different medicines and different modes of cure, the mind is constantly liable to fall into the greatest errors, by neglecting this leading truth. For when a man, in a state of disease, takes, for the purpose of curing that disease, a millionth or a decillionth of a grain of oyster-shell, or sulphur, or other homœopathic drug, he comes—not very unnaturally, but very illogically—to attribute his cure to the infinitesimal dose of oyster-shell or sulphur, from being unaware that the disease, if left to itself, does very often spontaneously get well, and was virtually left entirely to itself when he took his Hahnemannic dose of oyster-shell or sulphur. While the homœopathic patient anxiously attributes his cure to the infinitesimal dose which he has swallowed, the cure is in reality effected by the natural sanative powers of the constitution (the old *vis medicatrix naturæ*); or by nature aided, not by medicine, but by Medical Faith; or assisted by proper Regimen and strict Diet; the last, great, and potent auxiliary means, of which all homœopathists very properly and powerfully avail themselves." (Pp. 79–82.)

But it is claimed that comparisons instituted between homœopathy and other modes of practice show largely in favour of homœopathy. We will not detain the reader with a view of the fallacies which often attend such general and loose comparisons as are made by individual practitioners, or by non-professional observers, in the limited range of their observation; but we will come directly to what has been asserted to be the stronghold of homœopathy, the results of *statistics*. And we shall not dwell upon the statistics of *private* practice, to which appeals have been so boldly made, and which have so often been proved not only to be collated on loose and false principles, but to be marked by dishonesty, and sometimes absolute falsehood. Our intention is to deal only with the *hospital* statistics of homœopathy, about which so much noise has been made. On this subject Dr. Simpson has a long chapter, and the most valuable and best constructed in the whole book. We commend it to our readers, not only as exposing the practical nothingness of homœopathy, but as developing principles which it would be well to apply more strictly to our own statistics. We shall give a condensed view of the most important parts of this chapter.

The most noted of homœopathic hospitals is the Homœopathic Hospital of the Sisters of Charity, under the care of Dr. Fleischmann, of Vienna. He has published returns of 6,501 cases treated during eight years, viz. from 1835 to 1843. Of these, 1 out of every 16 died; that is, the mortality was 6.4 per cent. This is claimed to be a small percentage of mortality. It is, when compared with some hospitals, but not so when compared with others. The ordinary mortality of large and crowded hospitals in such cities as London and Edinburgh varies from 5 to 12 per cent. The average mortality of the largest hospitals in London, during four years, 1846 to 1850, was 8.4 per cent. The average mortality of fourteen large English hospitals was found, by Mr. Thomson, to be 7.7 per cent. That of the Dundee Hospital is 5.1 per cent.; that of Aberdeen 4.6 per cent.; that of Inverness 4.3 per cent.; and of thirty provincial hospitals, taken together, it was found, by Mr. Thomson, to be 4.4 per cent. The average mortality of the English military hospitals is only 2 per cent.

Some of these hospitals, it will be seen, have a higher mortality than Fleischmann's, and some less—some of them very much less. The mortality is varied by circumstances; it depends very much on the *character of the cases*

which are admitted, as will be seen as we proceed. We will only remark here that a hospital situated in the midst of a large city, crowded, taking in all it can, having a large number of persons injured by casualties, and rejecting, from its crowded state, applications from mild cases, must have a large average mortality, while in a hospital with all these circumstances reversed the mortality will of course be small.

Now, it can be shown that, if there be any virtue in homœopathy, the mortality of Fleischmann's hospital should have been much lighter than it was. The circumstances all favoured the existence of a small percentage of mortality. His hospital is not in the midst of a city, but some distance out of it; it is not crowded; it is spacious, and is superior in all its accommodations; and then the very object for which it was instituted, and its relations to the community, secure for it an abundance of mild and curable cases of disease. On this matter, Dr. Gairdner, as quoted by Dr. S., remarks:—

"'If I were to give a formula for the arrangement of a hospital designed to exhibit a low rate of mortality, it would be this: Choose your site well; let it be not *in*, but *near* a large city, having already hospital accommodation on a prodigious scale, well known to the poorest classes of the community, and adapted to their wants; let the distance from the centre be such (say three miles) as will keep back the extremely abject and the dangerously diseased, either through want of knowledge of your institution, or want of power to reach it; let the arrangements be so perfect as to contrast favourably with the older hospitals, and to attract the valetudinarians, whose illnesses and means permit them to avail themselves of its superior accommodation; and, finally, let some special practice be pursued, in order to enlist the sympathies of rich or idle *dilettanti*, who will know how to fill your wards with the sort of cases suitable for your experiment. THIS IS PRECISELY THE PICTURE OF THE VIENNA HOMŒOPATHIC HOSPITAL, which has the amazing effrontery to call upon us to compare its peddling *experiments* with the great labours of pure beneficence, of which general hospitals of this and other countries furnish examples.'" (P. 92, *note.*)

Dr. Simpson has instituted a comparison between Fleischmann's hospital and the Edinburgh hospital, which in *two* years admitted about the same number of patients as Fleischmann's did in *eight.*

Mr. Thomson, in examining various official reports of hospitals, arrives at this conclusion—that the mortality depends to a great extent upon the amount of cases admitted of the following diseases: 1. Pulmonary consumption; 2. Organic disease of the heart; 3. Aneurism of the large vessels; 4. Organic disease of the kidneys; 5. Organic diseases of the stomach. The mortality is apt to be the greatest, he found, in the hospital which has the largest number of cases of these diseases.

Now, of these five forms of disease there were only 120 cases admitted into Fleischmann's hospital, while 548 (nearly five times as many) were admitted into the Edinburgh hospital.

If we extend our view, and take in more of those forms of disease that are apt to prove fatal, we shall find the difference between the two hospitals still greater. The difference may be seen in the following table:—

Diseases.	No. of cases in Fleischmann's hospital.	No. of cases in Edinburgh hospital.
Consumption	98	276
Palsies	5	103
Organic disease of the heart	15	159
Organic disease of the liver	1	33
Bright's disease of the kidney	0	82
Diabetes mellitus	0	17
Internal aneurisms	1	18
Caries and necrosis	5	57
Malignant (cancerous) tumours	0	55
Other tumours	0	36
	125	836

That is, there were nearly seven times as many cases of these bad forms of disease in the Edinburgh hospital as in Fleischmann's hospital, with nearly the same whole number of cases in both. Besides, the difference between the two hospitals in regard to the number of cases of severe external injuries is very great. In Fleischmann's hospital there were only 52 cases of injury. Of these, 34 were cases of slight wounds, and all these recovered; the remaining 18 were cases of burns, of which two died. In the Edinburgh hospital there were 641 cases of injury, and 150 of them were subjects of the "principal operations," of which 32 died.

Another point of difference is in regard to putting the *moribund* into the statistics. These moribund cases "are admitted (says Dr. Routh) in our allopathic returns, even though a patient be admitted but one hour before death. The homœopaths pursue a different course. This very clearly affects materially the reported percentage of mortality."

Besides all these circumstances, the amount of mortality may be made much less by continuing to exclude incurable cases, while the admission of cases that are quite sure to recover may be courted. This is easily done; and it would be very apt to be done, if it be quite necessary to make out a favourable report. In Fleischmann's case this necessity existed; for, as Dr. Simpson says, "the very existence of his hospital depended for a time (and perhaps does so still) upon his mortality tables showing an amount of mortality which shall be considered sufficiently favourable by the Austrian government." At any rate, the facts show a very large proportion of mild cases in that hospital; while, as Dr. Routh, who visited it, says, "the serious cases are few and far between." To return to a comparison between this and the Edinburgh hospital. "While among the 6,000 Edinburgh hospital cases we have 34 cases of that non-fatal disease, inflamed sore throat, or *cynanche tonsillaris*, among the 6,000 Vienna homœopathic cases there are no less than 301 cases of this affection. In the Edinburgh returns there are 2 cases, and in the Vienna returns 110 cases of chicken-pox; in Edinburgh 1 case of herpes or tetter, in Vienna 20 cases; 48 cases of chlorosis and amenorrhœa at Edinburgh, and 90 at Vienna; 37 cases of headache at Edinburgh, 61 at Vienna; 52 cases of influenza at Vienna, and none at Edinburgh; and so on." Dr. Balfom, in speaking of the character of the cases which he saw from day to day in Fleischmann's hospital, during his visit there, says: "There are, I may say, hundreds of trifling cases admitted here which would not have been admitted into any hospital in England."

That there was contrivance, cunning, even dishonesty, in the management

of the admissions and exclusions on the part of Fleischmann, is very evident. In no other way can we account, on the one hand, for the admission of so many cases that do not ordinarily find their way into a hospital, and, on the other, for the exclusion, to so great an extent, of cases of disease apt to prove fatal, as consumption, disease of the heart, &c. At least, it is proper to infer from the bare result, if we had no direct proofs, that the one class of cases were encouraged to come, while the other were discouraged. But we have in fact some direct proofs of unfair management on this point, which, however, we will not stop to detail. Of course, the cases in which detection of the fraud (for such it is) is possible are few; but we have a right to presume that there were many more, and, of course, the rule, *falsus in uno, falsus in omnibus*, applies here.

Under all the favouring circumstances which we have noticed, it is obvious that Dr. Fleischmann could have made out a better case for himself, in his percentage of mortality, if there were any real efficacy in homœopathy. If any hospital under the control of "regular medicine" could be managed under the same favouring circumstances, and with the same manœuvring in the admission, and exclusion, and discharge of cases, vastly better returns could be made out than those which Fleischmann has so vauntingly spread before the world. Our hospitals actually do much better than his did, even with much less favourable circumstances, as, for example, the provincial hospitals, whose average mortality is, as we have before seen, 4.4 per cent., while that of Fleischmann's is 6.4 per cent., about one-third more.

Dr. Fleischmann, it seems, was very anxious to make out a good story of success in regard to his treatment of *pneumonia*, and Dr. Simpson furnishes very convincing proof that Fleischmann has, in order to accomplish this, enumerated more cases of pneumonia than he actually had. He has altogether too large a proportion of cases of this disease in his returns to make his statements true. In the general hospital in Vienna, the cases of pneumonia average about 2 per cent. of all the cases, while those of bronchitis average about 7 per cent. This shows us the relative average proportion of cases of these two diseases which would be apt to come into a hospital there. Now, in Fleischmann's hospital the cases of pneumonia average 4½ per cent. (more than twice as many as in the general hospital), while the cases of bronchitis do not reach 1 per cent. The explanation clearly is, that Fleischmann has called pneumonia many of his cases of bronchitis, in order to get the credit of success in treating this latter disease. This is the only rational explanation, and we adopt it with the less hesitation from his palpable dishonesty in other matters.

This giving wrong names to diseases is a very common mode among homœopathists of acquiring credit for curing grave disease. On this point, Dr. Simpson remarks that this cure, not to say fraud, appears in—

"the alleged great number of cases of acute *Inflammation* in the head, chest, and abdomen, seen in the returns of homœopathic as compared with allopathic hospitals. Every physician knows how easily an attack of neuralgic, spasmodic, or rheumatic pain, in any of these parts, may be mistaken for and set down as an attack of inflammation—as simple pleurodynia for actual pleurisy or pneumonia, headache and cerebral congestion for inflammation of the brain or its membranes, colic for enteritis or peritonitis, etc.; or how readily a milder disease may be returned for a more severe—as diarrhœa for dysentery, cholerine for cholera, spurious or spasmodic croup for true inflammatory croup, bronchitis for pneumonia, etc. etc." (Pp. 92, 93.)

We will cite here a single example of Fleischmann's dishonesty, and it is

in relation to the disease of which we have just spoken—pneumonia. An English physician, Dr. Balfour, attended Dr. Fleischmann's hospital practice through the months of May, June, and July, 1846, taking notes of all interesting cases. He published, among others, the particulars of 19 cases of pneumonia, of which 3 died—that is, 1 in 6, or about 15 per cent. But in Fleischmann's published returns for the whole of that year, though he gives 64 cases of pneumonia, he returns but 2 deaths, one less for the whole twelve months than Dr. Balfour saw die in that hospital, of this disease, duly labelled over their heads, during the three months of May, June, and July. If Fleischmann's returns are correct, the mortality was 1 in 32, quite different for the whole year from what Dr. Balfour makes it out for three months, which was 1 in 6.

There are many other points brought out by Dr. Simpson, in regard to this hospital experience, which it would be profitable to notice, if there were space and time. We will only remark, in passing, that the developments which have been made in this experience show decidedly that it is poor policy for homœopathists to open hospitals, and that they had better be content to deceive the public with the statistics of their private practice, as they will thus be less troubled with "allopathic" scrutiny. But if they *will* have hospitals, and publish their statistics, we advise them to avoid *particulars* altogether, and publish only the gross results.

The practical proofs of the absolute inefficacy, the nothingness of homœopathy, are various and abundant. It is not our intention to consider them at length, nor even to give them a passing notice. We cannot forbear, however, to mention some glaring practical evidence of this sort in the case of Dr. Simpson's colleague, Dr. Henderson. The facts were related by Dr. S. at a meeting of the Medico-Chirurgical Society of Edinburgh. We give the statement as reported in Dr. Simpson's book:—

"Some eight or ten years ago, an old schoolmate of Dr. Simpson having begun business as a homœopathic druggist in Liverpool, kindly sent Dr. S. a present of a small box of homœopathic medicines, and a very beautiful painted box it was. During the time it was in Dr. S.'s possession, he put it only to one use, viz. he gave it as an occasional plaything to his eldest son, who was then a child. The boy, revelling in his permitted amount of mischief, used in his sport to uncork the small bottles, empty their globules into a heap, and then refill the bottles from the general mass. Of course, this had speedily the effect of altering and disarranging the contents of the entire lilliputian drug shop; the globules pertaining to the different bottles were more or less thoroughly mixed together; and sometimes, when the child was tired of his occupation, others at last refilled the bottles from the general heap. A professional brother happening to call at Dr. S.'s house one day when Dr. S. was absent from home, saw the box, and put it in his pocket. Many weeks afterwards, the new proprietor of the box met Dr. S., and told him that he had been trying to practise homœopathically, at which Dr. S. expressed his regret; and he added that he had seen some wonderful effects and cures from using the drugs contained in Dr. S.'s own former homœopathic box! Wrongly, perhaps, as Dr. S. now thinks, he did not at the time tell this physician that the globules of the bottles which he had been using were elaborately commixed; but the whole struck him as so good a joke at the moment, that he thought he would reserve it to bring it out upon his friend on some future and more ripe occasion, for the purpose of laughing him out of his homœopathic delusion. But, unfortunately, matters hastened rapidly on; the physician became more and more a homœopathist; and then it became too serious a matter to joke about, when he actually published a list of supposed homœopathic cures." (Pp. 15, 16.)

This physician, as we learn from the same account, published in another

quarter, was Prof. Henderson. The facts need no comments. We will, however, relate a somewhat similar case which came to our knowledge. One of the lady apostles of homœopathy hearing of the sickness of a neighbour, sent in her box and pamphlet, with an urgent request that the globules might be administered in the case. A young man in the family, without letting any one know it, emptied the first phial, then poured the globules in the second into it, and so on through the whole, filling the last phial with the contents of the first. The labels remained as before. The next day the box was sent home, and the lady continued to use the medicines according to her pamphlet, with just the same success as before, distinguishing with homœopathic exactness the effects of each medicine. It is now two years since this unknown change was made in her box, and she has all this time had no suspicion that there was anything out of the way in it.

Such cases show why it is that homœopathists are unwilling to put their system to tests like that which was proposed to the most prominent homœopathist in Paris. The proposition was this: that he should himself select ten remedies and prepare them, and that one of these, chosen by lot, should be administered to him; and then that he should afterwards, at such time as pleased him, come forward and state which of the ten substances he had taken. The proposition was declined.

There have been some attempts made to establish the efficacy of infinitesimals by physical proofs, and to this subject Dr. Simpson devotes a chapter. The microscope has been brought into requisition, and some *thought* that they saw particles of the substance used (copper, for example), even in the 200th dilution, but they have since *thought* that they were mistaken.

At length it was announced that a Mr. Rutter, manager of the gas-works in Brighton, England, had invented an instrument, called the *magnetoscope*, by which he could demonstrate the action of the infinitesimals upon the system. Dr. Quin, the principal homœopathic practitioner in England, said of it:—

"'Science [homœopathic science] has made a gigantic stride by the philosophical instrument and important discovery of that gentleman; and homœopathic practitioners especially are greatly indebted to him for having proved the physical action of our remedies in infinitesimal quantities upon the human body; and you will join with me heartily in doing honour to him for the great impetus he will be the means of giving to our cause. The only reason for sorrow is, that our revered master, Hahnemann, is not alive to witness this triumphant PROOF of his own great discoveries.'" (P. 120.)

Then again:—

"'The great barrier which has prevented the majority of the members of the medical profession from inquiring into homœopathy, has been their repugnance to entertain, for a moment, the idea that the exiguous doses of medicine administered by homœopathic practitioners can have any effect whatever upon disease. This barrier is *now* broken down by the brilliant discovery and beautiful invention of Mr. Rutter.'" (P. 120.)

Dr. King, a physician of Brighton, said, in a letter to Mr. Rutter:—

"'When I first saw your machine prove the polarity of a decillionth of a grain of silex, and when I first saw it respond to the billionth of a grain of quinia, I was seized with the same kind of awe as when I first studied the resolution of the nebulæ, and as when I first saw the globules of blood and the filaments of the nerves through the microscope.'" (P. 121.)

The homœopathists, as a body, in England, hailed this discovery with similar enthusiasm.

Dr. Madden, a very prominent homœopathist, and obviously more honest

than some of his brethren, after trying many experiments, laid down these three propositions:—

"I. 'I can now render evident to the senses the action of our remedies, even at the *highest potencies*.

"II. 'I can demonstrate physically the truth of the homœopathic law [*similia similibus curantur*]; and

"III. 'I can prove the action of our remedies to be, in a certain sense, totally independent of *quantity*.'" (P. 124.)

But, reader, this splendid bubble has burst. Although the whole English homœopathic world ran mad with enthusiasm in regard to the results developed by numberless experiments, both in public and private, and though the President of the British Homœopathic Society but echoed the general sentiment when he said: "Try the instrument as you will, it never errs; *it has all the certainty of a mathematical equation;*" yet it has now, only two years, we believe, from the commencement of the great discovery, lost all its glory, and but comparatively few, with the *gaseous* Mr. Rutter, now excite their "motiferous fluids" with this instrument.

We have thus noticed but a small part of the book of Professor Simpson. We would commend it to any of our readers who wish to see the most full exposure of homœopathy that has yet appeared, and who desire to arm themselves with facts to meet the attacks of the patrons of this delusion, to which they are so often subjected in their daily intercourse. W. H.

BIBLIOGRAPHICAL NOTICES.

ART. XI.—*A Treatise on the Diseases of the Eye.* By W. LAWRENCE, F. R. S., Surgeon Extraordinary to the Queen; Surgeon to St. Bartholomew's Hospital, and Lecturer on Surgery at that Hospital; Surgeon to Bethlem and Bridewell Hospitals; and late Surgeon to the London Ophthalmic Infirmary. A New Edition. Edited, with numerous Additions, and two hundred and forty-three Illustrations, by ISAAC HAYS, M. D., Surgeon to Wills Hospital; Fellow of the Philadelphia College of Physicians; Member of the American Medical Association; of the American Philosophical Society; of the Academy of Natural Sciences of Philadelphia, etc. etc. etc. Philadelphia: Blanchard & Lea, 1854. 1 vol. octavo, pp. 948.

"LAWRENCE on the Eye" is so well known in this country, that, in announcing a new edition, it is unnecessary to enter into any details respecting its contents or its general merits.

The call for another American edition is the best evidence of its being appreciated by the profession. Every one feels the necessity of having a standard work on diseases of the eye in his library, and there is no work better adapted to the wants of the practitioner than that now before us.

Ophthalmic medicine is so much neglected by students when pursuing their medical studies, and, indeed, so little attention is paid to the subject by teachers of surgery, as to render it absolutely necessary that a work on this subject should be obtained at the outset of practice.

The present volume is issued with so much additional matter, and is so much improved in its appearance by numerous illustrations, that those who were familiar with the last edition will hardly recognize it.

More than one hundred pages of new matter have been incorporated, and the labours of the editor are everywhere to be seen, in the endeavour to represent fully the present state of ophthalmic science. No subject seems to have escaped attention. All the new points demonstrated in the anatomy of the eye, the new views in pathology, together with the improvements in treatment, have been introduced, so that it may now be considered the most complete treatise on the subject issued from the American press.

The relation sustained by the editor of Lawrence to this journal, forbids anything like commendation of the manner in which the task has been performed; but the position which Dr. Hays has occupied for so long a period at Wills Hospital, and his extensive experience in this specialty, must be a sufficient guarantee for the practical value of the new material.

The publishers have displayed their usual liberality in furnishing the profession a handsomely printed and elegantly illustrated volume. J. N.

ART. XII.—*On the Etiology, Pathology, and Treatment of Fibro-Bronchitis and Rheumatic Pneumonia.* By THOMAS H. BUCKLER, M. D., formerly Physician to the Baltimore Almshouse Infirmary. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 150.

"THE leading object of this volume is to point out, as clearly as possible, the distinctive characters of fibrous or rheumatic inflammation of the bronchial tubes, and at the same time to show the differential diagnosis between it and ordinary catarrh; the word rheumatic has, therefore, been affixed to the term

bronchitis, for the purpose of showing at the outset that it is intended to treat of a distinct affection, which, for want of proper anatomical accuracy as to its true seat, has been most singularly confounded with inflammation of the mucous membrane of the bronchi.

"The next object is to show that there exists a form of pneumonia which is never idiopathic, but occurs as a secondary lesion, and is always symptomatic of, and directly dependent on, pre-existing fibrous bronchitis. It is farther intended to point out the relations which the foregoing pathological conditions bear to general rheumatism and to rheumatic endocarditis, and to show that ordinary pneumonia, simple mucous catarrh, and fibrous bronchitis, with rheumatic pneumonia, often happen in the same lung as distinct, but still contemporaneous and concurrent, affections, and that where this is the case, therapeutic attention to the rheumatic element is often of vital importance to the safety of the patient."

The purpose of this essay has been stated in the author's own words, which convey more distinctly than any paraphrase of ours could do an idea of his subject and his mode of treating it. The reader will at once perceive that a new province has been opened in the region of thoracic pathology, a region which seemed incapable of presenting any object of interest left undescribed by the host of eminent writers who have followed in the steps of Laennec. But the sagacious and truthful questioner of nature, finds her treasures inexhaustible, and his ability to make them his own depends not less upon his entering the field of inquiry with an untrammelled mind than upon his knowing well the paths of previous explorers. Dr. Buckler is an accomplished physician; he has also been trained in a school of close and accurate observation, and is distinguished for a searching and analytical spirit. For such an one, it is impossible to walk in the literal footsteps of any scientific guide. He constantly strives to see farther and more distinctly than others have seen, to act as if the works of other teachers were rather finger-posts to point the way beyond their own attainments, than charts merely to make plain determined routes. It was in his own experience that Dr. B. first found a clue to guide him into a region altogether new to himself, as indeed it probably is to nearly all of his contemporaries. In 1842, his attention was strongly arrested by the case of a lady who died from an attack of acute bronchitis and pneumonia produced by cold, and whose lungs presented no lesions after death, of sufficient extent to explain the fatal termination. Subsequent experience presented him with cases of an analogous description, so far as relates to the local and general symptoms, but which came on during an attack of rheumatism that subsided as the pulmonary affection increased; and still other cases occurred in which the rheumatic and pulmonary affections alternated, each one augmenting as the other declined. These cases seemed to complete the demonstration of the dependence of the two morbid forms upon one essential cause; for not only did they present the reciprocal relation alluded to, but the pulmonary disorder which characterized them was peculiar in this respect, that its symptoms not only differed widely from those of simple idiopathic bronchitis or pneumonia, but was also amenable to remedies which control the rheumatic rather than the inflammatory element. "The symptoms most strikingly characteristic of the acute variety of rheumatic bronchitis are profuse, irregular sweats, inordinate sensibility to cold, transient flushings of the face, and either a constant or a paroxysmal and unproductive cough." The sweats in this disease are symptomatic and not critical, as they usually are in simple inflammation of the lungs. In subacute rheumatic bronchitis, the pulse and respiration are usually not more frequent than in health, nor is there pain in the chest, nor post-sternal soreness, but often, during the act of coughing, a painful sensation referred to the bronchi, and which is compared to the effect that scraping these tubes with a rough instrument might produce. Mucous catarrh is extremely limited in its duration, but rheumatic bronchitis may last for months or years. The auscultatory signs of the latter disease are entirely negative, with the exception of an occasional sibilant râle. It is eminently prone to be complicated with cardiac inflammation or with pneumonia. In rheumatic bronchitis of the acute variety, uric acid and urate of soda are found in excess in the urine; in the subacute and chronic forms, urates of soda and

lime are almost constantly found in the urine in very great excess. The author believes that as catarrh occurs sporadically, the rheumatic variety will be found in about five out of twelve cases of the disease.

"Fibro-bronchitis is often," he concludes, "without doubt, the most insidious disease under which a patient can possibly labour. It may last, in a subacute form, for days, weeks, or months, without giving rise to any greater annoyance than that which is produced by a dry cough, attended occasionally with slight pain and soreness. The individuals labouring under it feeling no indisposition, having a good appetite, and sleeping well, go about attending to their occupations as usual. With ordinary care, and an avoidance of exposure at night and during wet weather, the disease, unaided, frequently ends in recovery; but a very slight exciting cause, fatigue, over-indulgence in food and wine—particularly when these are taken at night—exposure to dampness, or some other trivial causes, often at once convert this mild affection into an acute bronchitis. On this, pneumonia frequently supervenes, giving rise to one of the most dangerous complications under which an individual can labour. But still more frequently acute bronchitis, with contemporaneous or subsequent engorgement, happens suddenly, without being announced by the cough and other antecedents which mark the subacute form of this affection."

Among the distinctive signs of rheumatic *pneumonia*, the following may be mentioned. The redness of the cheeks is generally faint, transient, and irregular, while that of the idiopathic form is usually deep, circumscribed, and constant. But if in the rheumatic variety the engorgement is extensive, the capillary congestion about the face is both deep and persistent. As this engorgement is seldom extensive in the rheumatic form of pneumonia, the respiration is affected only in the same proportion. The blood drawn in this disease is uniformly found more highly buffed than in simple inflammation of the lung, but not more so than in some severe cases of pleuro-pneumonia. In simple pneumonia there is generally no antecedent cough, but the rheumatic variety, being the consequence of a peculiar form of bronchitis, is usually preceded by the characteristic cough of this latter. Simple inflammatory pneumonia has a duration of from four to twelve, or at most twenty days, but where this affection is complicated with, or depends upon pre-existing bronchitis, the engorgement, if it does not result in death, may continue for thirty-five days, or even longer.

Such is a concise summary of the forms of disease which are described in Dr. Buckler's Essay. It will be readily apparent that none such are recognized in any of the systematic treatises on pulmonary disorders published since the methods of Avenbrugger and of Laennec were introduced to the profession. But, as the author is careful to show, writers of a previous age had recognized the existence of the affection which, it may be said, he has himself rediscovered and first described. The disciples of the humoral school of medicine were not unacquainted with its relations to rheumatism. Tissot, Rodamel, Barthez, Stoll, Boerhaave, and others, point them out, some with more and some with less distinctness. Of later writers, Latham is the only one, according to our author, who appears to have noticed them. We may mention a still more recent one, Dr. C. Black, who (in the *Monthly Journ. of Med. Science* for June, 1853), merely alludes, in passing, to "an epithelial variety of arthritic and rheumatic inflammation of the bronchio-pulmonary mucous membrane" as always shifting in its character, and tending to "occur again and again, but for a few hours only, during the course of the specific affections in their accustomed localities."

The rediscovery and the description of these internal forms of rheumatism, constitute, in our opinion, the claim of the present essay to a very high commendation. It is not improbable that the author attaches undue importance to the theoretical disquisition which he enters into, concerning the proximate nature of the diseases he describes. He believes that the most common producing cause of rheumatism is the presence in the blood of insoluble lithic acid and lithate of soda, which are arrested in the terminal bloodvessels supplying the fibrous tissues, act there as irritants, and thus become the primary link in the chain of morbid phenomena constituting one form of rheumatism. For this form, he regards the phosphate of ammonia as incomparably the best

remedy. He farther believes that another class of rheumatic inflammations depend upon the retention in the blood of nitrogenized matter, and that for these the antidote is diaphoresis. Another form of rheumatism he believes to depend on the presence of earthy phosphates in the blood, and he teaches that citric or acetic acid is its appropriate remedy. A fourth form of the disease he believes to depend upon the presence in the blood of certain extractive matters, producing the most inveterate cases of the malady, cases which are curable by a course of vegetable and mineral tonics, cod-liver oil, change of air, &c. All of these forms, he infers, may be seated in the fibrous and cartilaginous tissues of the bronchial tubes. But he does not say how the manner in which the tubes are affected furnishes a clue to the specific form of rheumatism, under which they suffer. This, it would seem, must be inferred from an analysis of the urine, and upon its results the treatment must be based.

Another and peculiar view of the author relates to the vital mechanism, if we may so speak, of rheumatic as distinguished from ordinary pneumonia. The latter, he believes, commences with congestion in the capillary vessels of the depurative circulation, and it is only, he maintains, when these passively dilated tubes come to be irritated by the retained globules, or by the presence of some saline material, that the process of inflammation is set up by the nutritious artery of the part, the passage of the blood through pulmonary depurative vessels is impeded, and effusion of plastic lymph takes place. In contradistinction to this mode, he conceives rheumatic pneumonia to arise in this wise:—

"It is well to remember that the fibrous tissue of the bronchi is traversed solely by the minute branches of the nutritious arteries, and that, where symptomatic pneumonia happens as a consequence of fibrous bronchitis, the order in which the vascular lesions take place is precisely the reverse of their occurrence, as already pointed out, in simple uncomplicated pneumonia. Insoluble uric acid, or its compounds, phosphates, or the extractive matters found in the urine, not being eliminated from the blood, are deposited in the meshes of the fibrous tissue, exciting nervous irritation, followed by vascular lesions, exudations, transfusions, and all the general phenomena incident to rheumatic inflammation. This process having set in, a symptomatic remora of blood takes place in the depuratory capillaries belonging to the inflamed bronchi, and a congestion, leading to engorgement, reaching the first or second stage of pneumonia, and rarely going beyond it, often takes place. This form of inflammation is propagated from the fibrous tissue of the bronchi, both by contiguous and continuous sympathy.

"Where the rheumatic inflammation is propagated to the pulmonary parenchyma by contiguous sympathy, the pneumonia is apt to be limited, and the engorgement is found wrapping, to a greater or less extent, one or more of the larger bronchi, constituting what is understood by central pneumonia, a comparatively rare variety of this disease. But when the inflammation extends by continuity, along the fibrous tissue of the bronchi, to the air-cells, the pneumonic engorgement found on the periphery of the lung is generally limited, but often diffused, involving more or less of one or both lungs; and, in rare instances, sudden death occurs from an active hyperæmia taking place throughout the whole pulmonary parenchyma, constituting what Laennec has well described as suffocative catarrh associated with pneumonia (Herbert's edition of *Laennec*, pp. 93 and 207). Again: the rheumatic element is also transferred from one lobe of a lung to another, by the same law of metastasis which is observed in the rheumatisms of the white and fibrous tissues of the body generally."

The foregoing explanation, it cannot be denied, is both ingenious and plausible, and may be perhaps accepted as provisionally true by those who have no better one to propose; but we cannot conceal from ourselves that it is still in the state of an hypothesis, and can assert no claim to be adopted into the body of medical truth.

About sixty pages of the essay are occupied by a detailed history of eleven cases of pulmonary disease, to which a rheumatic origin and character are attributed. Without having been able clearly to perceive these attributes in all of them, or the dependence of all their details upon their alleged nature, we

have great pleasure in commending them to the reader's attention as being narrated in an interesting manner, and as replete with apposite and useful reflections. These cases form only a portion of the twenty-seven of which an analysis is also given; a portion of them has already been made use of in the commencement of this notice. The whole will amply reward the reader's attention.

In the section on *Treatment*, the author speaks first of *depletion* as a remedy for simple idiopathic pneumonia; and after advocating what appears to us a singularly lavish use of bloodletting, he turns to the rheumatic form of the disease, in which he insists upon a still more liberal depletion. But most of all does this remedy appear to him salutary when rheumatic bronchitis and extensive engorgement exist contemporaneously in the same lung. Under these circumstances, he advises that the patient, if too weak to set up, should be placed in a semi-recumbent posture, and bled to syncope. If the quantity of blood, he continues, be too small, the operation should be soon repeated; diffusible stimulants, if necessary, being given to rouse the circulation, so that a sufficient quantity of blood may be had to remove congestion and control inflammation. Of this treatment, we are compelled to observe that it seems unnecessarily heroic. If any proposition has been of late years demonstrated, it is that profuse bleeding prolongs pneumonic congestion and effusion, while the expectant method counts fewer fatal cases in its lists than any other.

In fibro-bronchitis, our author advises *mercury* to be given in full doses often, or twelve grains once in the twenty-four hours, for the three or four first days of the seizure, or in doses of two or three grains every three or four hours, associated with about the same quantity of ipecacuanha. "From five to fifteen grains of nitrate of potassa may often be added with advantage to each dose." In broncho-pneumonia, attended with a frequent pulse and free perspiration, calomel, it is alleged, may be given freely, and continued for days without danger of producing ptyalism, especially if the patient be enjoined not to depress the action of his gums by taking cold drinks, and his bed be so placed that a draught of cold air cannot pass over his face. The author, in this connection, refers to experiments instituted by himself for the purpose of determining the catalytic power of mercury upon abnormal products of low organization. Those upon which he experimented were "the cartilaginous-like buttons" which form about the prepuce and corona glandis, as a result of neglected primary syphilis, and also open chancres with indurated bases. The patients having been previously mildly impressed with mercury, the seat of the disease was covered with a freezing mixture long enough to produce a sense of numbness in the adjacent skin. The part was then allowed to resume its natural temperature, after which it was covered with a warm poultice. These trials are stated to have been attended with happy results. Digitalis, the author thinks, of great value in controlling the action of the heart, and as to some extent a succedaneum for depletion. Antimony he holds to be of no value whatever, in uncomplicated fibro-bronchitis. Opium and its preparations, he is of opinion should be dispensed with as general remedies for pulmonary engorgement, because their immediate effects are to quicken respiration and strengthen the heart's action. In this belief we fully coincide, convinced that much evil arises from the lavish use of narcotics in pulmonary affections, for the reasons which have been pointed out. These medicines require cautious and delicate management.

The indications for the use of *antimony* in pneumonia generally are very judiciously laid down by Dr. Buckler. He does not regard them as existing in acute fibro-bronchitis, nor in fibrous inflammation generally, and least of all in the first-mentioned disease, when it is conjoined with engorgement of the lungs.

Of the chemical remedies for rheumatic bronchitis and pneumonia, we have already spoken. Our author has treated of them more summarily than could have been wished. Doubtless, he is right in his belief, that there are cases of the diseases named in which they may play an important therapeutic part. But we repeat, that the indications he has laid down for their use are either not sufficient or not sufficiently systematized to be of much assistance to practi-

tioners. While we cordially commend his essay to the favourable judgment of the profession, as one containing original observation, sound commentary, and ingenious speculation, we must be allowed to express the hope that the author will not rest satisfied with his present contribution to pathology, and that he will, on the contrary, give more earnest study to the subjects he has discussed, enrich his materials with the results of renewed observation, and subject them to a thorough and systematic analysis, while he cautiously separates fact from speculation, leaving each to rest upon the basis of its own worth.

ART. XIII.—*Experimental Researches applied to Physiology and Pathology.* By E. BROWN-SÉQUARD, M. D., of the Faculty of Paris, etc. etc. New York: H. Bailliere, 1853. 8vo. pp. 124.

THIS, though a small book in size, is, nevertheless, one replete with valuable matter. The interesting vivisections of Dr. Séquard, of which it treats, throw no small degree of light upon some of the confessedly obscure points connected with the physiology of the nervous system. Should the results of these experiments, as given by the author, be borne out by future observations, whether derived from direct investigations made upon the living animal, or from the domain of pathology, they will materially modify some of the doctrines, now taught as established truths, in reference to the functions and correlation of the different portions of the nervous system, and the part they play in the production of the phenomena of disease.

How far, in conducting his experiments, Dr. Séquard has guarded against the false or incomplete results which are so liable to occur in vivisections instituted with a view to determine the true physiological functions and relations of separate portions of the nervous system, and which lead so often to erroneous conclusions, we pretend not to judge. We would simply remark, that while his experiments appear to us to be, in general, ingenious and well-devised, the details of some of them are more loose and imperfect than we could have desired, while the points presumed by the author to be established by them are, occasionally, asserted with too great a degree of positiveness.

We have no desire to dispute the accuracy of any of the conclusions at which Dr. Séquard has arrived; we have a strong inclination to believe in the correctness of the majority of them, and would be pleased to see their truth unquestionably established.

The initial sentence of the work before us, announces a doctrine that we have long maintained in opposition to those who believe that all vital phenomena—all phenomena, indeed, of the living organism, without exception—are the direct result of nerve force or action. The doctrine we allude to is, "that every tissue possesses vital properties, in consequence of its peculiar organization, and that, in a completely developed animal, nutrition is the source of the vital properties, inasmuch as it is the cause of organization." The supposition that nerve action or influence is absolutely necessary to the performance of the functions of organic life has, we are persuaded, been the fruitful source of errors in pathology, leading to serious errors in the management of certain forms of disease.

Dr. Séquard's experiments in relation to the normal degree of the temperature of the human body in health are curious and instructive. From the facts he has adduced, he draws the conclusion that the normal temperature of the thoracic and abdominal viscera in the human species and in both sexes is between 102° and 103° F.; that is, some few degrees higher than is generally admitted.

His remarks on the value of cries as manifestations of pain are deserving of notice. We had been led to the same general conclusion as Dr. Séquard from our own observations made upon infants, and in older subjects labouring under disease, but had never been able to spare the time to test its accuracy by direct experiment.

"Cries and agitation may be attributed," Dr. S. remarks, "to a property of the nervous centres, which is completely different from the faculty of perception of painful or tactile sensations. That property is the reflex faculty of the true spinal marrow, as Dr. Marshall Hall calls it; it is the property of uniting, in co-ordinate movements, isolated muscular contractions, which is called by German physiologists the faculty of adaptation to an end. That property manifests itself by movements similar to those executed by unmutilated animals when they feel a pain; and it happens, sometimes, that these reflex movements are less disordered than the movements consecutive to a violent pain in an unmutilated animal. The *agitation* of the animals, deprived of all the parts of the encephalon, is merely the result of an action of the reflex faculty.

"The cries also appear to exist only in consequence of a reflex action. This appears difficult to be proved, and it will seem nearly impossible to admit that cries may be produced by an animal that has felt no pain, or that has not had the will of crying. We may consider a cry as a noise produced in the larynx, as many times a quick expiration is performed when the vocal cords are stretched. Now, as the tension of these cords, and the expiration, are produced by muscular contractions, it is easy to understand that these contractions are produced by a reflex action, as well as the contractions of the muscles of the limbs.

"For those who know that hiccough, coughing, sneezing, vomiting, &c., frequently are mere reflex phenomena, there ought to be no difficulty in admitting that crying is a pure reflex action.

"From the facts and reasonings contained in this note, I will now draw the following conclusions:—

"1. That the experiments by which many physiologists have endeavoured to prove that the cerebral lobes are not the exclusive seat of the perceptions, do not afford such proof.

"2. That animals can cry after the removal of the whole encephalon, except only the medulla oblongata.

"3. That the existence of cries cannot prove that there is a perception of pain, because cries result from muscular contractions, which may be pure reflex actions.

"4. That there is no proof that the pons varolii is the centre of perceptions either of touch or of pain.

"5. That if it be admitted that cries prove there is a perception of pain, we should have to admit that the medulla oblongata is also a centre for these perceptions."

The observations of Dr. Séquard in relation to muscular irritability in paralyzed limbs, and its semeiological value, give rise to the following conclusions:—

"1. The degree of muscular irritability in paralyzed parts, becomes rapidly greater than in the healthy parts, but, after a variable length of time, it diminishes, and, as it is well known, it may disappear.

"2. The muscles, deprived of the action of both the brain and the spinal marrow, become rapidly more irritable than the muscles deprived only of the action of the brain; but, after a certain time, there is also in them a more rapid diminution of irritability than in the others.

"3. It appears certain that the muscular irritability never disappears completely in parts deprived only of the cerebral action.

"4. In certain cases of paralysis, and more particularly of the face, as after the removal of a large part of the facial nerve, the muscular irritability may exist for years, at least in rabbits and other animals.

"5. It is very difficult, and sometimes almost impossible, to know the relative degree of muscular irritability in healthy parts compared with paralyzed parts, and such a knowledge could not be of a great semeiological value.

"6. The existence or the absence of reflex actions as a means of diagnosis between the cerebral and the spinal paralysis, has a much greater value than the degree of muscular irritability."

The observations of Dr. Séquard on the cure of epilepsy by the section of a nerve present nothing new. They serve, however, to sustain the correctness of what had before been previously asserted by many writers.

The following are curious results from a series of facts detailed by Dr. S.:—

"1. Red blood, that is, richly oxygenated blood (arterial or venous), is able to revive irritability in muscles, four or five hours after these organs have lost this property.

"2. Red blood is able to revive the vital properties of nerves and nervous centres, when these properties have not been lost for more than about an hour.

"3. Muscular irritability can be maintained for more than forty-one hours, by mere injections of blood, in limbs separated from the body of a rabbit.

"4. Muscular irritability may be re-established in limbs rendered rigid by chloroform for many days, even ten days."

We had noted the foregoing, as among the more interesting of the results of Dr. Séquard's investigations, when we perused the work. We have no intention, however, of presenting a regular analysis, much less of entering upon a systematic criticism of the author's labours in the field of physiology and pathology he has attempted to illustrate by his experiments. Nor need we present the conclusions at which he has arrived in regard to each of the subjects that have been touched upon by him. We merely desire to draw attention to Dr. Séquard's work, and recommend its attentive study to all who feel an interest—and what member of the medical profession does not—in physiological and pathological investigations having reference to some of the most interesting and important points connected with the functions of the living organism in health, and with the character and seat of certain of its diseased conditions.

We shall look with some anxiety for the appearance of the work promised by Dr. Séquard in his prefatory note to the one before us. We believe ourselves warranted in assuring him of its favourable reception by the profession generally.

D. F. C.

ART. XIV.—*A Treatise on the Venereal Disease.* By JOHN HUNTER, F. R. S. With copious Additions by Dr. PHILIP RICORD, Surgeon to the Hôpital du Midi, Paris, etc. etc. Edited, with Notes, by FREEMAN J. BUMSTEAD, M. D. Physician to the Northwestern Dispensary, New York. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 520.

WE have so recently had occasion to notice the opinions of Mr. Hunter, and Dr. Ricord, in connection with those of other syphilographists, and, even were it otherwise, the opinions of these distinguished surgeons are so well known, all over the world, that it is unnecessary at this time to expatiate upon them. In announcing a new book bearing their names, we shall, therefore, content ourselves with indicating its plan and scope.

In the edition of Mr. Hunter's complete works prepared by Mr. Palmer, in 1837, the volume on the Venereal Diseases was annotated by Mr. Babington, of London, and likewise contained notes of Sir Everard Home. A translation of this into French, by Dr. Richelot, with notes and additions by Dr. Ricord, was published in Paris, in 1840; and a second edition of the same, considerably enlarged, appeared in 1852. It is this work, translated by Dr. Bumstead, of New York, which we now present to our readers; or we should rather say, that Dr. Bumstead has taken the original English edition of Mr. Hunter's book, and inserted a translation of Dr. Ricord's notes, from the last Paris edition, together with some by himself.

It is very interesting to trace the history of opinions held concerning any disease, from early times. As, in the processes of manufacture, materials, at first crude, gradually become more and more valuable, assume new and more lasting forms, until, under the skilful hand of man or the unerring *instinct* of the machine, they are developed into fabrics of permanent worth, or ideal beauty; so, in the progress of science, opinions undergo modifications, or are discarded, new facts are collected together, new theories are formed, and at length the truth is established in all its enduring symmetry.

The book whose title we have quoted illustrates our remark, with regard to

the medical history of Venereal Disease. Mr. Hunter first systematically investigated the subject, and discovered some of its pathological laws; and Dr. Ricord has carefully and laboriously re-examined the matter, modifying some of his predecessor's views, rejecting others, and inculcating new ones. So that this volume contains the result of the investigations of these celebrated men upon the diseases of which it treats.

Dr. Bumstead has furnished an excellent translation of the French notes, and has appended judicious observations of his own, wherever an error was to be corrected, a new fact added, or an obscurity or seeming contradiction explained.

We have always thought that this combined treatise of Hunter and Ricord was the best work on Venereal Diseases extant; and we are very glad to see it translated into English. F. W. S.

ART. XV.—*A Treatise on Diseases of the Heart.* By O'B. BELLINGHAM, M. D., F. R. C. S., &c. Dublin: Fannin & Co., 1853. 8vo. pp. 252.

THIS is an excellent and systematic work, by an author whose position and experience entitle his opinions to be received with attention. The first part (which is the only one we have received) contains an examination of the heart in health and in disease. The first division of the subject is treated in detail. The anatomical peculiarities of the heart, and its relations with the neighbouring organs, receive a very clear and satisfactory description.

While the motions, impulse, and sounds of the healthy heart, form the basis upon which are founded Dr. B.'s exposition of his views of cardiac disease, it will be found that, on the other hand, these same pathological considerations have greatly weighed with him, in adopting the opinions which he holds, of the cause of the healthy sounds and movements. He considers, that both the first and second sound are due to the friction between the blood and the parietes of the orifices of the heart.

In the first sound, coincident with the ventricular systole, the friction is between the blood and the aortic and pulmonary orifices; while the second, synchronous with the diastole of the ventricles, is produced by the friction of the blood in its passage from the auricles into them. Thus, it will be seen that the author singles out but one of the various causes to which the first sound is attributed; his explanation of the origin of the second sound, although not new, is urged with more show of reason than has been heretofore done.

The pathological evidence in favour of these views, is suggested, according to our author, by the double sound, "which cannot be distinguished from the normal double sound of the heart," heard in cases of aneurism of the arch of the aorta. He says, page 99: "That, in certain instances, the first of these sounds, in others the second, and in others again, both these sounds are converted into murmurs, altogether analogous to the murmurs which accompany diseased states of the orifices and valves of the heart. That the aneurismal sounds are caused by friction between the blood and the parietes of the orifice of the sac, requires no proof, because there is no other agency to which they could be referred. This is at least evidence that a valvular apparatus and muscular walls are not essential to the production of sounds analogous to those of the heart. The conditions common to both are, a cavity into and out of which the blood passes with more or less force and rapidity; and if the friction between the blood and the parietes of the mouth of the sac is capable of developing, not merely a double sound similar to that of the heart, but murmurs which differ in nothing from those developed in diseased states of the heart, the same agent is evidently equal to produce analogous sounds at the orifices of the ventricles." The evidence from cardiac disease in favour of the friction theory is, according to our author, farther confirmed by the following circumstances, under which the *first* sound is converted into a murmur.

"1. When the aortic orifice or its valves become diseased, so as to *obstruct* the onward current of the blood. * * *

"2. When the walls of the left ventricle are hypertrophied, and the blood is propelled through the aortic orifice with increased *force*. * * *

"3. When the viscidity of the blood is diminished, and this fluid is propelled with increased *velocity* through the aortic orifice. * * *

"4. When the walls of the left ventricle are attenuated, the first sound of the heart comes to resemble the second sound, because the blood is propelled with less force, less blood is transmitted through the arterial orifice, and the systole lasts a shorter time.

"5. When the walls of the left ventricle are softened and have undergone fatty degeneration, the first sound of the heart becomes more feeble, because the blood is propelled into the aorta with less force. * * *

"6. When the cavity of the left ventricle is dilated, and its walls are increased in thickness, a larger amount of blood will be transmitted at each ventricular systole, and the first sound of the organ will necessarily be prolonged."

The second sound is seldom converted into a murmur, but a murmur which masks the second sound, is by no means rare, and is heard whenever the aortic valves permit regurgitation. An explanation of this is given by the author, which we have no room for. But the force of the second sound is much diminished—

"1. When the mitral orifice is much contracted, * * because but little blood can enter the ventricle from the auricle during the ventricular diastole."

2. When the ventricles are already gorged with blood.

The intermittent character of the heart's sounds, the author explains upon the same theory.

The second half of the volume is given to an examination of the heart in disease. The many interesting points discussed under this head, we can, of course, do no more than indicate. The characters presented by the impulse of the heart in disease, and the signs furnished by percussion and auscultation, are fully explained in the two chapters devoted to them. This is followed by a very interesting description of the "General signs of cardiac disease." Here, the countenance and posture of the patient receive a merited consideration, as well as the various conditions under which palpitation and epigastric pulsation are noticed. *Angina pectoris* is regarded by Dr. Bellingham as a symptom of disease of the heart, and not a distinct affection; its probable cause being an impediment to the coronary circulation, particularly to the return of blood by the coronary veins. After a careful examination of the varieties of the *pulse* in cardiac disease, our author concludes that they offer in some instances a material aid to the diagnosis, but that, owing to the usually complicated nature of structural disease of the heart, they give in many others no assistance whatever.

The secondary symptoms, such as congestion of the various internal organs, and dropsy, are described under their appropriate heads. The volume closes with a consideration of the causes, progress, and termination of cardiac disease.

We can heartily commend the study of this work to all interested in cardiac pathology. It is comprehensive and practical, well arranged and clearly written. The views held by the author, as to the manner in which the sounds arise, and the changes they undergo in disease are, if not correct, at least perfectly rational and intelligible, and account satisfactorily for many of the physical signs observed in disease of the heart. M. S.

ART. XVI.—*Reports of Institutions for the Insane.*

1. *Of the McLean Asylum*, for 1851 and 1852.
2. *Of the Butler Hospital*, for 1851 and 1852.
3. *Of the Retreat at Hartford*, for 1851 and 1852.
4. *Of the Maine State Hospital*, for 1851 and 1852.
5. *Of the New Hampshire Asylum*, for 1852.
6. *Of the Vermont Asylum*, for 1851.
7. *Of the Boston Hospital* (*Paupers*), for 1849, 1850, and 1851.

1. THE report by Dr. BELL, of the McLean Asylum, for the year 1851, is, like most of its predecessors, very brief, and is mostly devoted to a description of

the method by which the Cochituate water has been introduced into the buildings of the institution. A disbeliever in the value of statistics in insanity, the doctor makes his practice consistent with his theory by restricting these data to the simple facts—or, as he would say, "facts and opinions" of admission and condition at the time of discharge.

	Men.	Women.	Total.
Patients admitted in course of the year	89	79	164
Whole number in the Asylum	185	179	364
Discharged	90	83	173
Remaining at end of year	95	96	191
Of those discharged, there were cured	40	35	75
Died	15	14	29

"Of the deceased, eight were not under seventy years, and one was over ninety."

In the report for 1852, it is stated that, "the call for room, during the past year, has far exceeded anything in our former experience. It is within bounds to say, that we have been obliged to refuse more female patients than we have received, and probably as many of both sexes, as we have admitted. * * * * Our last year's experience demonstrates that another institution of the magnitude and character of this is as urgently demanded as have been any of our previous substitutes and extensions, which have, one after another, raised our aggregate from the less than seventy, whom I found on taking the charge, to the nearly three times that number we have been obliged to find a place for during the past three or four years."

Hence the doctor recommends that another establishment, disconnected from the McLean Asylum, and intended for females alone, should be founded. "There are no advantages," he observes, "of which I am aware, in having the insane of both sexes in one institution of this kind, whatever may be the case in pauper establishments, or where labour is expected of the inmates. On the contrary, there are many inconveniences and disadvantages. The customary arrangement of patients of both sexes in the same place, doubtless, had its origin in the expectation that only so many sufferers could be aggregated as would be sufficient for the full employment of a single directing head. It seems not a little singular, that a custom entailing so many objections should have been continued where its original basis had ceased to exist."

	Men.	Women.	Total.
Patients admitted in the course of the year			145
Discharged			135
Remaining at the end of the year			201
Of those discharged, there were cured	37	35	72
Died	11	4	15
Admitted from 1837 to 1852, inclusive			2339
Recovered " " "			1173
Died " " "			271

2. The number of patients in the Butler Hospital,	Men.	Women.	Total.
on the 31st of December, 1850, was	50	63	113
Admitted in the course of 1851	33	35	68
Whole number	83	98	181
Discharged	22	32	54
Remaining, December 31, 1851	61	66	127
Of those discharged, there were cured	8	18	26
Died	7	9	16

Causes of death.—Chronic mania 8, "Bell's disease" (typho-mania?) 4, paralytic affections 2, meningitis 1, extensive pulmonary and intestinal disease 1.

The returns of the United States census, for 1850, give the number of the insane in Rhode Island as 233, or 1 in 633 of the population. In 1850, the legislature of the State appointed a commissioner to inquire into the condition

of the public poor, and the insane. He visited all the towns, with a single exception, and reported the number of the insane as—paupers 143, all others 140, total 283, or one in 521 of the population. Dr. Ray remarks, that "guided by such information as we happen to possess in regard to the immediate question, and generally, by the amount of error such inquiries usually present, I think we may safely say that an addition of 50 per cent. would better express the actual truth." This would make the number of insane 420, or one to every 351 of the inhabitants.

The increasing prevalence of insanity, which is implied by these statistics, induces Dr. Ray to a discussion of one of the most productive causes of this fearful malady—defective or perverted education. "The gross neglect," he observes, "of the moral powers, those which guide the passions and determine the notions, is the crowning defect of the education of our times, ruinous in its consequences to the health, both of body and mind." He recognizes "the home" as the place in which children should be taught "to acquire the power of governing passion and resisting the impulses of the lower appetites, of discerning the nicer shades of right and wrong, of sacrificing self to the call of benevolence or duty, and, amid trial and change, steadily keeping in view the great purposes of life. The time has never been," he continues, "when this kind of training, in its highest condition, was very general in our country; but I submit, as a matter of fact, whether, imperfect as it has been, it has not greatly declined during the last few generations? Unquestionably, at one time, the domestic rule was needlessly rigid and disagreeable, and led to an asceticism of manners equally prejudicial to the mental health and the moral welfare. * * * At present, however, we have little to fear from this source, the danger all lying in the opposite direction. The asceticism of our ancestors was infinitely less injurious than the license which characterizes the domestic training of their descendants. How many of this generation complete their childhood, scarcely feeling the dominion of any will but their own, and obeying no higher law than the caprice of the moment. * * * * * * The legitimate result of these defects in the education of our time, is, that finally the ordinary virtues of life are degraded to a very subordinate rank. Patient and persevering industry, with its slow and moderate rewards, honest frugality, and a temperance that restrains every excess, frequent and faithful self-examination, clear and well-digested views of duty, become distasteful to the mind which can breathe only an atmosphere of excitement, craving stimulus that rapidly consumes its energies and destroys that elasticity which enables it to arise from every pressure with new vigour and increased power of endurance. * * * * The conclusion of the whole matter is that insanity must necessarily increase in our community until the moral faculties shall be subjected to a higher culture, both in the school and the family."

Report for 1852:—

	Men.	Women.	Total.
Patients, January 1, 1852	61	66	127
Admitted in course of the year	39	62	101
Whole number	100	128	228
Discharged	36	50	86
Remaining, December 31, 1852	64	78	142
Of those discharged, there were cured . .			30
Died			15

Causes of death.—"Acute mania 2, chronic mania 5, Bell's disease 3, general paralysis 1, apoplexy 1, phthisis 1, heart affection 1, suicide 1."

"As usual, several deaths occurred within a day or two after admission, from that very fatal form of cerebral disease, which, under the various names of 'meningitis,' 'brain fever,' 'phrenitis,' and 'Bell's disease,' (and he might have added 'typho-mania,' the most common of all,) has now become very common in our establishments for the insane."

This paragraph is quoted for the purpose of calling the attention of the general practitioner to the peculiar form of mental derangement therein mentioned. It is becoming quite common, particularly in large cities, and it is a form in which

the unpractised physician is almost certain to pursue a deleterious course of treatment. I once had two cases sent to me by one physician in the course of a few days, in both of which liberal venesection had been practised. They died as, I believe, such patients invariably do, after general bloodletting. It appears to be acknowledged, by all who have had experience in the treatment of this special form of mania, that a fatal result can be avoided only by active stimulation. Dr. Bell's description of the disease may be found in the *Journal of Insanity*, for 1849 or 1850.

During the first five years of the operations of the Butler Hospital, 491 patients were admitted, 127 discharged cured, and 80 died. During a greater part of the year for which the report is before us, the number of patients exceeded what was originally supposed to be the utmost limit of the means of accommodation.

In this report, as in its predecessor, Dr. Ray takes up the subject of the semeiology of insanity, and handles it with that masterly power which is exhibited in all his efforts, wherever he writes seriously and in earnest. We can only give a general idea of this valuable, interesting, and truthful essay.

"Special and particular cases of insanity," he remarks, "no doubt there are, but the immense disparity between our own and all other times, in the prevalence of this disease, can only be attributed to the peculiarities which distinguish it from all other times. The press and the rostrum, the railway and the spinning-jenny, the steam-engine and the telegraph, republican institutions and social organizations, are agencies more potent in preparing the mind for insanity than any or all those vices and casualties which exert a more immediate and striking effect. This is the price we pay for civilization, and we shall continue to pay it, until that very distant day when men will have learned the difficult lesson of using their blessings without abusing them.

"The present is an age of great mental activity all over Christendom, and especially with us. The amount of it now required for maintaining the ordinary routine of the world, would have passed all conception a century ago. Especially has this been obvious in that constantly progressive enlargement of the field of industry, whereby the attention of men has been turned to an increasing variety of pursuits. * * * * * * When we consider the amount of thought that has been concerned in bringing the manufacture of a pin, or a screw, to its present state of perfection, we may have a remote conception of the amount of that kind of mental exercise which is required in creating and conducting the countless processes of human industry. * * * *

"No single incident of civilization has contributed so much to maintain the mental activity of modern times, as the art of printing. * * * The multiplicity of books and of readers not only evinces a degree of mental activity which, a century ago, would have been thought to be scarcely within the bounds of possibility, but much of the literature of the day is more or less directly addressed to the lower sentiments of our nature, thereby impairing that supremacy of the higher which is indispensable in a healthy, well-ordered mind. * * * * * It is accessible to every reader in the land, and a large portion of those whom it attracts will be found among the young. If any one is disposed to doubt the accuracy of the fact, or the magnitude of its evils, let him look through any asylum in the country, and there will he see many a young man, once remarkable, perhaps, for endowment and promise, presenting one of the most loathsome and hopeless forms of disease, and will learn, upon examination, that in many the evil originated chiefly in the reading of books addressed to the imagination and passions. When we consider, too, that cases of this kind seldom recover, and thus add, by accumulation, to the actual amount of insanity in the world, the fact will account for much of its recent increase.

"Much of the mental activity that characterizes our people arises from the abundant opportunities that are offered for the pursuit of wealth, and the consequent variety and novelty of the enterprises undertaken for this purpose. * * * * The result (of fortunate speculations) all can see and admire, but few know anything of the wear and tear of mind by which it was achieved, of the laborious calculations, the anxious moments, the sleepless nights, the joy of success, the apprehension of failure. Indeed, our ways of doing business, our

notions of property, our ideas of happiness, all indicate, as strongly as traits of character can, that a large portion of our fellow-citizens habitually live and move, and have their being under an extraordinary pressure of excitement which brooks neither failure nor delay. * * * The cracking strain of all the faculties most concerned in the management of business, the hopes and fears, the joy and the sorrow, the anticipations of success or defeat, produce a rapid consumption of the mental energies, which strongly predisposes the mind to insanity.

"Over and above that mental activity which is excited by the ordinary pursuits of life, there prevails among us a disposition to penetrate into untrodden fields of inquiry; to construct new systems of philosophy and science; to become absorbed in themes of a special and peculiar character; and especially to speculate in whatever is strange or mysterious, whether in the natural or the spiritual world. * * * * We question everything; we pry into everything; and, in our opinions, we bring many things to light. * * * * * Animal magnetism, biology, communications with the spiritual world, are now discussed by multitudes with a deeper interest than they ever manifest in those immutable laws of nature which, if understood and observed, would vastly enlarge the sum of human happiness. * * * * * We are naturally led to another manifestation of the mental activity of our times, especially important as being the prolific parent of many others. The intellectual education of the young, on which we are disposed to pride ourselves so highly, is more calculated to stimulate a few of the mental faculties than to produce the harmonious development with the strong and healthy condition of all. * * * It may make brilliant and showy men, not incapable, in fact, of producing a sensation in the world, but it will not preserve them from the seductions of fashionable systems in philosophy or morals, nor fit them for meeting the practical exigencies of life in the best possible manner. * * * Under a more rational training, we have a right to suppose that a multitude of subjects which now seriously engage the attention of men, with no better result than to weaken, if not destroy, every conservative principle in their minds, would never be entertained, and thus a prolific source of insanity would be avoided.

"Another mental habit of our times, strongly calculated to produce an unhealthy condition of mind, is that of concentrating the thoughts and interests upon a single idea. Whatever object is deemed worthy of promotion, whether it be morals, politics, literature, or religion, that object is thenceforward regarded as of paramount importance, compared with which all others sink into insignificance. By the individual it is believed to be the great question of the day, and destined, like Aaron's rod, to swallow up every other. * * * At last, he gets to think that there is no hope for the race beyond the pale of his little *ism* or *ology;* and in his zeal for propagating it, he is ready to ride, roughshod, over the most deliberate convictions and most cherished sentiments of his fellow-men. * * * This habitual confinement to a very limited sphere of thought, tends to invest the favourite idea with a false colouring, if I may so speak, which distorts its natural proportions and relations, until it finally assumes all the characters of a *delusion.* * * *

"Another characteristic of the present generation, deserving of notice in this connection, is a remarkable proneness to excess and exaggeration in all its intellectual manifestations. Truth is supposed to require a high colouring to make it sufficiently impressive; while the calm, the plain, the moderate, whether in the subject-matter or the form of expression, is apt to be regarded as 'stale, flat, and unprofitable.' * * * High-sounding words are mistaken for depth of meaning, extravagance for intensity, and the feverish heat of a jaded fancy for the fervors of a true inspiration. * * * To be popular, philosophy must abound in startling theories, and challenge our strongest and dearest convictions; education must aim at apparently great results, rather than the vigorous growth and symmetrical development of the mental faculties; poetry and romance must lay bare the morbid anatomy of the heart, in order to find the real sources of moral life and the true principles of social organization. * * * It cannot be questioned that this fondness for the intense, whether real or mock, is unfavourable to mental health, and has contributed, in some degree, to the recent increase of insanity among us.

"Perhaps nothing is better calculated to foster the kind of mental activity in question, than the practical working of our republican institutions. * * * The political agitation, which is never at rest, around the citizen of a republic, is constantly placing before him great questions of public policy, which may be decided with little knowledge of the subject, but none the less zeal—perhaps with more. * * * Whatever be the occasion, he feels called upon to have an opinion of his own; and if an eye to the main chance shows it to be unsafe to speak out his thoughts, then his ingenuity is exerted to conceal them by means of false issues, double meaning, and non-committal, and the amount of mental exercise necessary for this end would suffice, a half dozen times over, for the ordinary routine of life. But the mental activity which is excited directly by free institutions, is not confined to political matters. It pervades every sphere of action, every exercise of thought. The almost absolute freedom from restraint, and the independence of foreign control, even in opinions merely, lead to a certain hurry and impetuosity of the vital movements, and an impatience that seeks for results by extraordinary effort or superficial methods. * * * We rush into every strife, and take sides in every question that agitates the public mind. * * * We have no idea of any division of labour here, and think ourselves as competent to sit in judgment on questions that have accidentally been brought before the public notice, as they who have made them the study of a lifetime. If, in this way, every man is not his own doctor, or lawyer, or minister, yet he enters, with the zeal of a partisan, into every contest between rival systems of medicine, law, and divinity. * * * How different, in this respect, is the present generation from all the past, in which people were quite satisfied, in regard to certain subjects, with taking their opinions upon trust, in the belief that others might be better qualified, by education and experience, to form them, than they were themselves, and thereby avoided one fertile source of that excitement and agitation which prepare the mind for insanity."

This is but a mere skeleton of the article before us; but, in the language of the article itself, it is "enough for those who are disposed to profit by the warning; and too much, probably, for the larger number, who will regard it as merely an ingenious speculation."

Near the close, Dr. Ray asks, "Whoever heard of a book on mental dietetics, or has the slightest suspicion that the health of the mind may be affected by the manner in which its exercise is managed?" This query is now satisfactorily answered, by the admirable little treatise by Dr. Feuchtersleben, entitled "Dietetics of the Soul," originally published at Vienna, but translated and republished in London. A few copies have been imported, and found an immediate sale. Although it contains some extravagancies, yet it should be read by every physician, as a certain modicumof the doctrines inculcated therein would be of essential value in general practice.

3. The report for 1851, from the Hartford Retreat, gives the following statistics:—

	Men.	Women.	Total.
Patients, April 1, 1851	72	85	157
Admitted in course of the year	68	90	158
Whole number	140	175	315
Discharged	52	82	134
Remaining April 1, 1852	88	93	181
Of those discharged there were cured	26	42	68
Died	9	13	22

Causes of death.—Consumption 2, chronic inflammation of the intestines 2, cancer 1, apoplexy 3, general paralysis 2, paralysis 5, dysentery 4, exhaustion 2, general debility 1.

Nine years ago the daily average number of patients was 84; during the year covered by this report it was 168.

The following remarks by Dr. Butler will apply with equal truth to any good asylum, and the ideas therein contained should always be considered in making an estimate of the utility of institutions for the insane: "The benefits conferred by the institution will not be correctly appreciated, if estimated

alone by the number of those discharged as recovered. Among those who leave us as more or less improved, or whose mental state is reported as stationary, are many who have received benefits little less in importance to themselves and their friends, than that of restoration to sanity. These take with them, besides an improvement of their general health, greater ability to take proper care of themselves, to control their impulses, and to make a better use of their remaining powers of body and of mind. If patients cannot be restored to reason, it is something to have acquired habits of cleanliness and decency, of peacefulness and industry."

The custom, so common in Continental Europe, of connecting with the institutions for the insane, chaplains, whose duty it is to visit the patients daily, has met with but little favour upon this side of the Atlantic, and the Retreat is the only asylum at which it has been adopted. The numerous and grave objections to the plan, have there been overcome or rendered nugatory by the rare qualifications of the incumbent. Were all clergymen *fac-similes* of the late Thomas H. Gallaudet; did they understand human nature, psychology, and insanity as well as he; and had they that peculiar natural adaptation to the place which no individual training or effort can attain, the custom might be generally followed, and, undoubtedly, with material benefit. "His equanimity and calmness," says Dr. Butler, "checked the unduly excited, his suavity and quiet dignity calmed the turbulent; his kindness, cheerfulness, and wit, with his ready repartee, cheered and amused the desponding; while his rare conversational powers, and his fund of anecdote, and of general and useful knowledge, made him the welcome companion of all. His aptness of illustration, the happy manner in which he applied practical religious truth to the varying circumstances of the different patients, together with his quick perception of individual peculiarities, gave him ready access to every mind, especially to that class of religious monomaniacs who are difficult of approach, and whose minds appear most obstinately closed against right and natural views. * * * He seemed to bring sunlight with him into our household, and he left its cheering influences in every heart."

The report for 1852 is from the pen of Dr. E. H. Hunt, who acted as physician to the Retreat during the absence, on a voyage to Europe, of Dr. Butler:—

	Men.	Women.	Total.
Patients, April 1, 1852	88	93	181
Admitted in course of the year	66	74	140
Whole number	154	167	321
Discharged	74	77	151
Remaining, April 1, 1853	80	90	170
Of those discharged, there were cured	32	32	64
Died	11	10	21
Whole number, since opening of the Retreat			2318
Discharged, cured			1267
Died			243

It appears from this report that there are no statute laws in regard to the confinement of patients in the Retreat. Dr. Hunt very justly remarks, that "the security of the public demands that some simple and readily accessible means of approximately determining the fact of insanity, by means of a careful investigation of each case by some independent and impartial tribunal, should be provided by legislation, and that its requirements, in all cases, be complied with."

Dr. Hunt suggests that, in order to "render the institution worthy, at least, of the entire confidence of even the most timid and exacting," there shall be "a regular monthly visit of two of the members of this board, who shall make a thorough examination of every part of the institution, and learn the reason for every apparent indication of severity or neglect." Now the Retreat, among its immediate officers, has a chaplain, who, by virtue of his sacred profession, ought not to brook the least mal-treatment of the patients; it has its "Board of Managers," and a "Medical Board," both of which, as appears by the report, make "frequent official and unofficial visits;" and it has a "Visiting Committee of

Ladies," numbering seven persons. If all these guards are insufficient to prevent the invasion of abuses, it would seem that prevention is impossible. They are enough, at least, to render the labours of the superintendent sufficiently onerous; and, if the proposed committee be appointed, we would advise him, unless he wishes soon to be compelled again to flee to Europe in search of health, to suggest still another committee—a "Resident Committee for the Reception of Committees." That which Dr. Bell very properly terms "*the tittle-tattle*," in regard to alleged abuses at the asylums, constitutes a portion of the mental pabulum of certain classes of the people, and can no more be suppressed by additional efforts for the prevention of any real cause in which they might originate, than the delusions of an insane person can be removed by assuring him that they are erroneous and absurd.

4. The report of the Maine Insane Hospital embraces a period of twenty months, from the 31st of March, 1851, to the 30th of November, 1852.

	Men.	Women.	Total.
Patients, at the commencement of the period .	34	24	58
Admitted since	64	35	99
Whole number	98	59	157
Discharged	47	25	72
Remaining at the close of the period . . .	51	34	85
Of those discharged, there were cured . .	22	14	36
Died	8	1	9

"One died with pneumonia, three with general paralysis, one with scrofula, one with malignant sore throat, one with epilepsy, one with inflammation of the liver, and one with consumption."

Since the institution was opened it has received 115 suicidal patients, 61 males and 54 females. Only two of these, and those both males, have committed suicide while in the hospital, though several have done so after being removed therefrom. Of homicidal patients there have been 69, 53 males and 16 females. "No accident from any of these has ever occurred." "The suicidal form of insanity is as likely to recover as any other form, but the homicidal much more rarely recovers." "There have been twenty who had both suicidal and homicidal propensities, eleven males and nine females."

Of patients inheriting a predisposition to insanity, "three hundred and thirty-seven have enjoyed the benefits of the hospital and been discharged. One hundred and forty-eight of them went home cured; a proportion nearly equal to that which obtains among those who do not inherit the disease."

Dr. Harlow thus writes of the practical operation of *that* "Maine Law" which provides that all persons charged with crime, and alleged to be insane, shall be removed to the Insane Hospital for the purpose of testing the validity of the allegation: "We have had five such cases within the last twenty months, sent here by order of the court. They were all males. Three of them were charged with the crime of *arson*, one with *larceny*, and one with *assault with intent to kill*. Three proved to be insane beyond a doubt. The other two were brothers, one aged seventeen, the other ten, and both charged with the crime of *arson*.

"In the case of the older boy, so much doubt existed in relation to the presence of insanity that he was removed from the hospital soon after we reported him to the court. The younger boy is of diminutive size, physically slender, strongly marked with the nervous temperament, quite active and irritable, and has rather a wild, peculiar expression of the eye, and the impediment of stammering. He is unlike any other boy we have ever seen, an enigma of no easy solution. He possesses a good memory, an uncommon observation, great inquisitiveness, acute perception, strong affection, emotion, and feeling, little or no judgment, and a will which brooks restraint with great difficulty. He is, naturally, far from being malicious, but possesses kind and tender feelings towards all, except when under the influence of passion. He is forward, fearless, and bold. He is a creature of impulse; and here, we consider, lies the secret of the whole matter. Impulse, if we may so speak, usurped all power, and impelled him, in the absence of judgment and all conscience, without motive or thought,

to commit the crime with which he is charged. We could not consider him in any other light than as an irresponsible boy, as not accountable for the acts which he committed, on the ground of *an undeveloped judgment and a want of conscience.*"

5. Dr. McFarland having resigned the Superintendence of the New Hampshire Asylum, his place has been filled by the appointment of Dr. John E. Tyler, the author of the report now before us.

	Men.	Women.	Total.
Patients on the 31st of May, 1852	63	55	118
Admitted in course of the year	68	64	132
Whole number	131	119	250
Discharged	61	46	107
Remaining, May 31, 1853	70	73	143
Of those discharged, there were cured	41	22	63
Died	5	3	8

Causes of death.—Chronic mania 3, consumption 2, exhaustion 2, suicide 1.

From the opening of the asylum, in 1843, 1,058 patients have been received, 434 discharged recovered, and 92 have died.

The report is brief, and does not touch upon any important subject which has not heretofore been fully discussed in these "notices."

6. The report of Dr. Rockwell, of the Vermont Asylum, is limited to three pages.

	Men.	Women.	Total.
Patients on the 1st of August, 1850	173	155	328
Admitted in course of the year	63	74	137
Whole number	236	229	465
Discharged	67	63	130
Remaining, August 1, 1851	169	166	335
Of those discharged, there were cured			73
Died			35
Admitted since the opening of the asylum			1746
Discharged cured			818

A severe form of dysentery prevailed chiefly in the months of August and September (1850). Ninety-three patients were attacked by this disease, of whom sixteen died. Nearly all of our attendants and assistants were attacked by the same disease, all of whom recovered.

In treating of the caution necessary to be observed in regard to the removal of persons to the asylum, Dr. Rockwell makes the subjoined remarks, which coincide with the opinions which we long since formed and expressed in regard to the class of cases in question.

"There is one class of cases, especially, which are frequently sent too early to a lunatic asylum, I mean that of puerperal cases. We have repeatedly had women brought to the asylum in less than two weeks from their accouchement. Some of them have recovered very soon, but would, probably, have recovered as well had they remained at home. Others have died, apparently from exhaustion, who might have recovered had it not been for the exposure and fatigue of the journey."

7. The Boston Lunatic Hospital was opened in 1839, and the report of 1849, by Dr. STEDMAN, contains the principal data in regard to the movement of its population, during the first decennium of its existence.

	Men.	Women.	Total.
Whole number of patients	313	298	611
Discharged	232	175	407
Cured			180
Died			129
Remaining			204

Single 329, married 211, widowed 61, unknown 10.

Causes of death.—Consumption 26, marasmus 13, general paralysis 11, epilepsy 10, dysentery 10, Asiatic cholera 10, general debility 9, diseases of heart 8, hemiplegia 5, exhaustion 4, chronic diarrhœa 4, suicide 3, chronic inflammation of brain 2, erysipelas 2, variola, inflammation of stomach and intestines, inflammation of intestines, fungus hæmatodes, typhoid fever, scrofula, cholera morbus, pleuro-pneumonia, tubercular peritonitis, cancer, purpura, and wound of an artery, 1 each.

"During the last year, and that preceding, dysentery prevailed epidemically, and very severely. Erysipelas has been of frequent occurrence among us. The Asiatic cholera was not so terrific in its ravages here as we had anticipated. On its first irruption, provision was made for such patients as might be attacked by it, by converting our bowling-alley building into a cholera hospital. Great care was also taken in properly ventilating the halls and rooms of the main hospital, in regulating the diet, and in watching and arresting the very first movements towards this affection. Numerous inmates were seized with diarrhœa during this epidenic, and had it not been for the timely and successful attempts made to check this apparently premonitory symptom, cholera would not have left this household so free from its ravages as it did. The number of those prostrated with true cholera was sixteen. Of these, ten died; all of whom had been insane for too long a period to allow of any expectation of recovery from their mental disease."

In the course of the year one of the patients stabbed another in the leg, with a knife which he procured in the dining-room. The hemorrhage was arrested by tying the femoral artery, and, twelve days afterwards, secondary hemorrhage by tying the external iliac. Death, however, ensued, twenty-five days subsequent to the primary wound. The investigation by the grand-jury established the fact that the attendant upon the patient who committed the outrage had neglected to follow the printed rules of the house, obedience to which would have prevented the accident.

In a case of prolonged abstinence from food, Dr. Stedman administered chloroform, and, while the patient was under its influence, "nourishing liquids were readily swallowed." "I have since," he remarks, "resorted to the same treatment in other cases, with a like beneficial result. My belief now is, that, in anæsthetic agents, we have a perfect preventive of self-destruction from starvation, in those cases, at least, where there is no organic lesion of the stomach."

From the report for 1850.

	Men.	Women.	Total.
Number of patients, November 30, 1849 . .	80	123	203
Admitted in course of the year	27	46	73
Whole number	107	169	276
Discharged	26	46	72
Remaining, November 30, 1850	81	123	204
Of those discharged, there were cured . .	12	25	37
Died	8	17	25

Died of consumption 4, general debility 3, paralysis 2, exhaustion 2, dropsy 1, erysipelas 1, marasmus 1, dysentery 11.

"Dysentery has been the most prevalent and fatal disease with which we have had to contend. It commenced about the 1st of August, and continued till about the 1st of November. During this period forty-seven cases occurred of a severe and very intractable character. Of this number, ten died. It proved most fatal among the aged and the melancholic, and took off but one case in which there was any certainty of recovery from mental disease. It was remarked that only the most emaciated, or such as were suffering from other and long standing disease, succumbed to dysentery; the fat and more robust who were attacked survived. One patient, an Indian, in good bodily health, afflicted with chronic mania, and who had been insane three years, was seized with the severest form of dysentery which has ever come under my observation. While in the height of the malady, his mental operations began to undergo a change, after which his mental and bodily convalescence went on together, and resulted

in the perfect restoration of the entire man. Another, a man who had been insane over twenty years, and quite a difficult one to manage, owing to his strong mischievous propensities, was attacked with the same affection, and remained dangerously ill for some weeks. He recovered from dysentery, and now no patient in the house is more quiet and controllable. Indeed, to many he would appear mentally sound."

In June, 1851, Dr. Stedman resigned his office, and Dr. Clement A. Walker was elected as his successor. The report for that year is from the pen of the latter.

	Men.	Women.	Total.
Patients, November 30, 1850	81	123	204
Admitted in course of the year	46	46	92
Whole number	127	169	296
Discharged	27	28	55
Remaining, November 30, 1851	100	141	241
Of those discharged, there were cured . . .	13	14	27
Died	10	12	22

Causes of death.—Consumption 4, exhaustion 3, general debility 2, dysentery 2, epilepsy 2, marasmus 2, apoplexy, typhoid fever, typhus fever, pneumonia, inflammation of bladder, general paralysis, and chronic diarrhœa, 1 each.

"But one epidemic has appeared among us the past year, and although dysentery was prevalent, numbering nearly fifty cases, yet it was of mild type, and was fatal in but one or two instances."

The following case of "an intelligent Irish lad" is worthy of a place upon permanent record:—

"The little fellow, but thirteen years of age, arrived at Boston, on board an emigrant vessel, in July last (1851), having no friends here with the exception of a brother, who had preceded him but a few months. He landed on Thursday, and on Saturday became a raving maniac. Confused by the strangeness, and, to his eyes, the magnificence of the city, which, for weeks, had been the culminating point of his anticipations; he wandered about, gazing upon the novelties by day, and dreaming of them by night, until he believed himself the inhabitant of a fairy land, and could not recognize the brother, whose bed he shared; 'for,' said he, 'he was dressed so nice, and we usedn't to be so at home.' Reason soon fled, and for weeks he by turns babbled like a child and raved like a madman. At length convalescence was established, and has since rapidly progressed. A few weeks more and he will doubtless go out from us whole."

Of the ninety-two patients admitted in the course of the year, sixty-one were foreigners, fifty of them from Ireland.

Persons acquainted with the subject will perceive, by the statistics herein quoted, how, as time has progressed, the great predominance in the number of males over that of females in our public institutions for the insane has disappeared. Indeed, *from these data*, it would appear that there are more insane females than males. Excluding the Maine Hospital, where, since the conflagration, the apartments for men greatly exceed those for women, the number of patients remaining in the above-mentioned asylums, at the time of last report (except the McLean, of which the latest report does not distinguish the numbers of the sexes) was, of males 582, females 644, and the number of admissions, in course of the preceding year, males 367, females 399. P. E.

ART. XVII.—*Lectures on Surgical Pathology*, delivered at the Royal College of Surgeons of England. By JAMES PAGET, F.R.S., lately Professor of Anatomy and Surgery to the College; Assistant Surgeon and lecturer on Physiology at St. Bartholomew's Hospital: London, 1853, 2 vols. 8vo.

THESE two volumes contain the lectures which Mr. Paget delivered at the Royal College of Surgeons, during the years elapsing from 1847 to 1852 inclusive, as the Professor of Anatomy and Surgery to that body. They were listened to with the greatest respect and attention, each one being anticipated as an intellectual feast. With the exception of those relating to malignant tumours, they have already appeared in the columns of the *London Medical Gazette*, and have been read, quoted, and admired far and wide.

The first volume, containing 500 pages, treats of numerous important subjects, as follows: NORMAL NUTRITION, including the formative process, and growth; *Hypertrophy* and *Atrophy*, with the degenerations accompanying and indicating the latter; *Repair* and *Reproduction*, embracing, particularly, descriptions of the materials provided for the reparation of wounds, fractures, and other injuries, and the processes by which this repair is accomplished; *Inflammation*, its phenomena, nature, and causes, the changes which it produces in the tissues inflamed, its products and their developments and degenerations, its relations to the process of normal nutrition; *Mortification*, its phenomena, nature, causes, and the methods by which its effects are recovered from; and, lastly, *Specific Diseases*, their peculiarities as contrasted with non-specific affections, and the theory of their production.

The second volume, of more than 600 pages, is devoted to the consideration of *Tumours*, simple and malignant, and *tubercle*.

The amount of practical research, and the varied learning exhibited in these volumes are really remarkable. We are delighted with the laborious and accurate observation, the lucid description, the powers of comparison and generalization, and the philosophical deduction which every page exhibits, as well as with the elegant simplicity of style and the lofty tone of the whole.

We need not say that Mr. Paget has availed himself of all the aids which Modern Chemistry and Microscopy lend to the study of Pathology, and with which no one is more familiar than himself.

Both volumes are profusely illustrated and embellished by drawings.

We think we do not err in saying that, since the publication of Mr. Hunter's works, no contribution has been made in the English language of so much value, in Surgical Pathology, as this of Mr. Paget.

The two volumes have been reprinted in one by Messrs. Lindsay & Blakiston, of this city. F. W. S.

ART. XVIII.—*A Treatise on Operative Ophthalmic Surgery.* By H. HAYNES WALTON, F.R.C.S.E., Surgeon to the Central London Ophthalmic Hospital, &c. &c. First American from the first London Edition. Illustrated by 169 Engravings in Wood. Edited by S. Littell, M.D., author of a Manual of the Diseases of the Eye, Surgeon to Wills Hospital, &c. &c. Philadelphia, Lindsay & Blakiston, 1853: 8vo. pp. 599.

THE credence accorded to exploded methods of treatment, revived and proclaimed as novelties; to the absurdities frequently announced as improvements, and to the impossibilities claimed to have been achieved by imaginative specialists, incontestably demonstrate the ignorance which prevails in regard to ophthalmic medicine. Every attempt, therefore, to enlighten the profession in relation to this department of our science, to reclaim it from the mere specialist and the charlatan, and to bring it within the domain of legitimate medicine, is entitled to approbation. Such is the design of the work before us.

Though limited in its range, as its title indicates, to operative ophthalmic surgery, it is, so far as it goes, a valuable contribution to our science, and its publication will exert a salutary influence. Its author, if not perfectly familiar with the literature of the subject, has been educated in a good school, has had extensive opportunities for experience, and possesses the habits of observation and reflection to benefit by them. His work throughout bears evidence, of an intimate acquaintance with the principles of general pathology, and of the sound common sense which characterizes the British school of ophthalmic medicine, and which strongly contrasts with the fancies and conceits promulgated at some of the Parisian clinics.

The subjects treated in the work are: 1. The use of Chloroform in Ophthalmic Surgery. 2. Ophthalmic Instruments in general. 3. Injuries from Mechanical and Chemical Agents, &c. 4. Foreign Bodies on the Surface, &c. 5. Affections of the Eyelids. 6. Affections of the Puncta, the Canaliculi, and the Lachrymal Tube. 7. Caries of the Orbit. 8. Nævi Materni, &c. 9. Incision of the Conjunctiva and of the subjacent Cellular Tissue in Chemosis from Purulent Ophthalmia. 10. Strabismus, &c. 11. Tumours of Eyelid. 12. Protrusion of the Eyeball, &c. 13. Staphyloma of the Sclerotica and Cornea. 14. Conical Cornea. 15. Removal of Opacities of the Cornea by Operation. 16. Cataract, &c. 17. Entozoa within the Eyeball. 18. Artificial Eyes. 19. Malignant Affections of the Eye. 20. Artificial Pupil, &c. 21. Extirpation of the Eyeball, &c.

The notes by the editor, Dr. Littell, who is well known to have devoted much attention to this branch, are few but judicious.

The style in which the work is issued is very creditable to the publishers; but we have to regret that they should have omitted the history of ophthalmic surgery, which constitutes the first chapter of the original; for, whatever may have been its imperfections, it is unjust to an author to mutilate his work, and curtail it of a part which he may deem important to its completeness.

Art. XIX.—*The Elements of Materia Medica and Therapeutics.* By Jonathan Pereira, M. D., F. R. S., and L. S. Third American edition, enlarged and improved by the author; including notices of most of the medicinal substances in use in the civilized world, and forming an Encyclopædia of Materia Medica. Edited by Joseph Carson, M. D., Professor of Materia Medica in the University of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Philadelphia: Blanchard & Lea, 1852 and 1854. Vol. I. pp. 838, Vol. II. pp. 1226.

Our readers will learn with pleasure that the second volume, which completes this standard scientific work, has been at last published. This edition was revised by its lamented author with special reference to the American reprint, and it contains the directions of the last revision of the U. S. Pharmacopœia.

In copiousness of details, in extent, variety, and accuracy of information, and in lucid explanation of difficult and recondite subjects, this work is admitted, as the editors justly observe, to surpass all others on materia medica hitherto published.

We hope, in our next number, to be able to give a review of this complete encyclopædia of materia medica.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *The Corpusculus Tactus.*—Mr. Huxley has published, in the *Journal of Microscopical Science* for October, some interesting observations on these remarkable bodies. The following are the results of Mr. Huxley's researches:—

"1. He has found in the human finger papillæ containing both corpuscles and vessels, though never any destitute of corpuscles, and yet containing nerves. It follows that the distinction originally made by Wagner into corpuscular and vascular papillæ cannot be absolutely maintained.

"2. He believes that the corpuscle is not histologically a special structure, but is composed of tissue not radically different from that of the papilla itself, the sole difference consisting in this, that the elastic bands and filaments which the corpuscle contains are more or less parallel to one another, and perpendicular to the axis of the corpuscle. In one respect, however, he believes the corpuscles to be peculiar, namely, that they are the modified extremity of the neurilemma of the nervous tubules which enter the papilla.

"3. Without positively denying that the nerves may end in loops, he states that he has never been able to convince himself of this mode of termination; and that, on the other hand, he has frequently observed the nervous tubules to end by pointed extremities, which appear to be continuous with the tissue of the corpuscle.

"4. He considers the corpuscles in question as analogous to the Pacinian bodies, in which latter bodies he denies the existence of concentric laminæ and of a central cavity, and considers them as nothing more than thickened processes of the neurilemma of the nerve to which they are attached, differing from the tactile corpuscles only in the circumstance that the thickening in the latter takes place on each side of the nerve fibril, while in the Pacinian body it takes place on both sides.—*Assoc. Med. Journ.* Nov. 18.

2. *Mode of Termination of the Nerves.*—From a paper by Rudolph Wagner, in the *Annales des Sciences Naturelles*, xix. 370, we extract the following statement of that distinguished physiologist's late researches on this much vexed subject. His investigation has been carried on chiefly in relation to the ending of the nervous filaments in the dental pulp, the papillæ of the tongue, and the labyrinth of the ear.

In the tooth-pulp, the nerves end by free extremities; and though they form loops in great number, yet the same fibril may be traced through several loops, and appears always to terminate at last by a free ending. In the lingual papillæ, too, the termination by loops is apparent only, and the deception arises from

the mere superposition of one curving fibre over another, each afterward pursuing a separate course, and ending free.

In the labyrinth, Wagner observes: 1, a system of fibres manifestly ending by free extremities; 2, a set of looping fibrillæ; 3, another system of fine branching fibres; the connection between which three systems is not easily traced. He concludes, "provisionally," that the auditory nerves consist of primitive fibres, interrupted in their course by the frequent insertion of "ganglionic cells," which, connecting the ends of the interrupted fibre, are necessarily attached by each end, or "*bipolar*;" that these fibres then form with the loops a terminal plexus, next pass into the condition of pale thin fibres (without the medullary pulp), and that these ramify; and that, at the extremity of each branch, there is seated a ganglionic cell, fixed on it "like a pear by its stalk," and hence "*unipolar*."

Wagner concludes, also, from his examination of the nervous fibres of the lachrymal gland, and of muscle, that all the primitive nervous fibres, motor, sensory, and "trophic," subdivide many times, and never form terminal loops; that free ending of the nervous fibrils is the general rule, and that to these fibrils are attached either the elements of the tissues, or, as appears to occur in many cases, ganglionic (nervous) cells, forming as it were "terminal buttons."

This conclusion with respect to the termination of the nervous filaments by free extremities, and the absence of proof, to say the least, of the ending being by loops, manifestly tallies with the observations of Mr. Huxley above detailed. —*Assoc. Med. Journ.* Nov. 18, 1853.

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3. *Bloodvessels of the Lungs.*—Dr. James Newton Beale has submitted to the Royal Society (*Phil. Mag.* September) the results of a series of careful injections of the pulmonary and bronchial vessels, which, he finds, have no communication whatever with one another; and the most novel result of his investigations is, that the so-called bronchial artery does not supply the bronchi at all.

The pulmonary artery may be thoroughly injected without the fluid passing in the least degree into the "bronchial" vessels, and *vice versâ*.

1. The pulmonary artery makes no anastomosis whatever with any other artery, nor do its own branches anastomose with one another; its branches are distributed directly to the air-cells, and none go to any of the other tissues of the lungs, except some few which perforate the subpleural cellular tissue, and are distributed to the pleura; some of these also cross the posterior mediastinum, beneath the pleura, and reach the thoracic pleura.

2. The bronchial arteries end in veins, which ramify in the subpleural cellular tissue; the cellular tissue of the lung being the part supplied by these (so-called) bronchial vessels. The greater part of these bronchial veins pass into the posterior mediastinum, and empty themselves into the œsophageal and other veins.

3. The bronchial mucous membrane is very freely supplied with a very close plexus of vessels, of a peculiar and very characteristic description, which is found to ramify in every part of the bronchial membranes, even as high as the trachea. The whole of this plexus is a continuation of the vascular plexus of the air-cells, and therefore derived from the *pulmonary* artery, but only thus indirectly, as no branch of that vessel goes directly to the mucous membrane.

4. The pulmonary veins are formed by the junction of two distinct sets of radicles: one set derived from that part of the air-cells most distant from the minute terminal bronchus entering each lobule, and which radicles form small trunks visible on the surface of the lung between the lobules. The other set is derived from the bases of the pulmonary lobule, and go to supply the bronchial mucous membrane before entering the pulmonary vein.

5. The coats of the lymphatic vessels of the lung are supplied by bloodvessels derived from the air-cells, and which terminate in the pulmonary veins; and the distribution of bloodvessels on the coats of the lymphatic bears a strong resemblance to that of the capillaries on the bronchial mucous membrane.—*Ibid.*

4. *Glands in connection with the Eye and Nose.*—Dr. Sappey has published, in the recent numbers of the *Gazette Médicale* (Nos. 33, 34, 35), some researches on the glandular secreting apparatus of the eye and nostrils.

He describes the orbital and palpebral portions of the *lachrymal gland* as usual, and states that the ducts passing from the former, to the number of three, four, or five, pass through the inferior division of the gland, on their way to the conjunctiva, and receive in this course the secretion of some of the lobules of that part of the organ; while the greater part of these lobules pour their secretion into two or three separate ducts, which pierce the conjunctiva in a line with those before mentioned. The acini of the lachrymal gland Dr. Sappey has succeeded in injecting with mercury.

The *subconjunctival glands* are from ten to twenty-five in number, conglobate; and each pours its secretion by the duct upon the surface of the membrane, where it is reflected from the lid upon the eyeball at its upper nasal aspect. The *ciliary sebaceous glands* are two to each eyelash, and quite resemble the sebaceous glands of the hairs in other parts of the body: it is these, and not the Meibomian glands, which pour out the secretion so usually noticed in ophthalmia tarsi.

The mucous secretion of *the nose* is poured out, according to Dr. Sappey, not from follicles, but from glands, not unlike in general arrangement to the Meibomian glands of the eyelids. They consist of grape-like bunches of acini, arranged along the excretory duct, into which they pour their secretion by short subsidiary branches. The main ducts run vertically through the mucous membrane, and open by circular orifices on its surface. In some parts of the nasal mucous membrane, as on the anterior part of the outer wall of the nostrils, they are very numerous; in others, more widely scattered. Our author has not succeeded in finding these glands in the thin membrane of the frontal and maxillary sinuses.—*Assoc. Med. and Surg. Journ.* Oct. 14, 1853.

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5. *Secretion of Sugar by the Liver, and its Modification by Disease.*—M. Vernois, with the object of verifying and extending M. Bernard's researches, has submitted 173 livers to examination; and the following are the general results he has arrived at: 1. He believes, with Bernard, that sugar constantly exists in the human liver, independently of alimentation. He found it in a case in which no food had been taken for fifteen days. 2. *Age* appears to exert a certain amount of influence. The minimum amount was found from birth to two years of age; the maximum from twenty to fifty years of age. Sugar is found in the liver of the fœtus (as early as the fourth month), but in less quantities than that of the adult. There may be sugar found in the liver of the fœtus, and not in that of the mother, and *vice versa*. 3. *Sex* exerts no appreciable effect. 4. The *influence of disease* upon the secretions is indubitable. (1) The quantity of sugar is in an inverse ratio to the *duration* of the disease. (2) The *nature* of the disease which has caused death influences the secretion. In some diseases, and especially in epidemic cholera, sugar is more easily found in the liver than in the normal state; while in the majority of diseases sugar is seldomer detected, as in sclerema, cerebral affections, tubercular disease, etc. (3) The *anatomical conditions of the liver* exert an influence, the quantity being lessened in proportion as the secretory structure is destroyed. The putrefactive process, however, does not prevent its detection. Gubler says none is found in the livers of syphilitic infants. 5. The opaline aspect of a decoction of the liver is usually proportionate to the amount of sugar, as determined by the potash and Trommer's tests.—*Monthly Journ. Med. Sci.* Nov. 1853, from *Archiv. Gén.* 1853.

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6. *Spleen removed.*—Dr. Crisp exhibited, at the Physiological Meeting of the Medical Society of London (Nov. 14, 1853), a dog, the spleen of which was removed two years and a half since by Dr. Leared, of Finsbury-circus. The animal was in good condition, and did not appear in any way to have suffered from the loss of the organ. The blood, which was exhibited under the microscope, presented no abnormal appearance.—*Med. Times and Gaz.* Nov. 19, 1853.

ORGANIC CHEMISTRY.

7. *Crystallization of the Blood.*—A new and very interesting subject has lately been more formally brought before the profession; we refer to the fact of the production from the blood, in certain circumstances, of red "albuminous crystals," which though formed of animal matter, and sometimes, in all probability, during life, have yet forms as regular as any inorganic crystals. An excellent epitome of the facts bearing upon this matter has been published in the *Medico-Chirurgical Review* for October, from which we select as much as appears calculated to be interesting to the majority of our readers.

It has been hitherto held to be the rule, that crystallization is peculiarly a property of inorganic chemistry, and that crystalline forms are met with in the animal economy only when the material giving rise to them has lost all claim to be considered as an integral part of the living tissues. The discovery of the crystallizing power of the albuminous elements of red blood (*hæmatoidin* of Virchow) has, however, made it probable that there are exceptions to this general law.

Various authors, as Sir E. Home, Scherer, etc., had described reddish crystals in blood which had been effused into tissues or organs; but Virchow was the first who paid particular attention to their actual nature, as different from saline or earthy crystals. He considers that the formation of these red crystals is the terminal step of the transformation of the colouring matter of the blood, which, first diffused, passes into the granular, then into the crystalline form; the crystals being yellowish or red, of a rhomboidal form, occasionally as large as the ordinary triple phosphate crystals in the urine, and forming spontaneously in extravasated blood, in the course of from a fortnight to three weeks after its escape from the vessels. Virchow concludes that the crystallizing process may take place—1, in the cells; 2, in amorphous protein substances (in both cases from diffused colouring matter); or 3, from agglomerated and subsequently metamorphosed blood-corpuscles; that the crystallizing power is inherent in the albuminous matter or protein; and that the colouring matter in the crystals bears no other relation to them than the metallic colours impregnating its crystals do to quartz. Reichert comes to similar conclusions: that the crystals are albuminous, and that the colouring matter is not an essential feature. Kölliker has advanced another step in this investigation, having detected the crystals *in the interior of unbroken blood-corpuscles.* In the blood of a dog's liver, he found a great number of blood-globules, containing from one to five rodlets of a dark yellow colour; and, in unchanged corpuscles from the splenic blood, the gradual formation of one or two of the crystals could be followed. Dr. Funke introduces the matter under yet a new aspect; he has succeeded in forming the crystals from the blood. If we add water to a drop of blood spread out upon the object-glass of the microscope, when the drop has just begun to dry up, the edges of the heaps of blood-corpuscles are seen to undergo a sudden change. A few corpuscles disappear, others receive dark thick edges, become angular and elongated, and are extended into small, well-defined rodlets. In this manner, an enormous quantity of crystal embryos are formed, which are too small to enable us to determine their shape; they rapidly extend more and more lengthways, the entire field of vision being gradually covered with a dense network of acicular crystals crossing one another in every direction, other crystals presenting the form of rhombic plates.

The coloured rhomboidal crystals, however, as originally described by Virchow, do not appear to be capable of being artificially formed.

Such, we think, is a correct, though brief statement of the principal facts on this very interesting subject.

On referring to the drawings of some of the principal forms which we have already described, we think no one can fail to be struck with their great resemblance to the various crystalline forms found in the urine, uric acid, oxalate of lime, triple phosphate, nay, even cystine. Had we been shown the drawings

without being told of their origin, we should at once have set them down as illustrations of the crystalline urinary deposits.—*Assoc. Med. Journ.* Nov. 18, 1853.

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8. *Milk, and its Constituents.*—This secretion has not met with that amount of attention, lately, that its importance, and the means for investigation now at the command of the physiological chemist, would seem to invite. Before noting, however, what has recently been done in this division of organic chemistry, it may not be amiss to detail a few of the accepted facts respecting this liquid, since these may lead to a readier comprehension of what will follow.

First, then, as to colostrum, and the distinction between it and milk; in colostrum, there is not merely an increase in the amount of the saline constituents to twice or thrice of that existing in healthy milk, nor a general augmentation of the solid constituents only, in the ratio of about 17¼ to 11, and which is, according to Simon, principally due to the increased quantity of sugar, although this point is not absolutely determined; but the difference mainly depends on the presence of granular masses, termed *colostrum corpuscles*, which are invariably present in the colostrum, but disappear, as a rule, in three or four days after delivery, being apt to reappear on the supervention of any acute disease. These colostrum corpuscles are much larger than the true fatty milk globules, and consist of small fat globules imbedded in an albuminous substance; whilst, as they exist in larger quantity in the colostrum, than the milk globules do in healthy milk, the former secretion is really richer, than milk is, in fat.

In healthy milk the amount of butter varies according to circumstances, but appears to average nearly 3½ per cent.; this butter is considered to be richer in olein than the butter from cows' milk. The valuable observation of Simon may be remembered by some, that the butter undergoes no appreciable change in amount during suckling, but that the milk-sugar diminishes with the growth of the child; whilst the proportion both of the casein and the saline constituents are augmented. L'Heritier formerly detailed some singular analyses of the milk from two women, both twenty-two years old, one dark, the other fair, from which it appears that not only the quantity of butter, but of almost all the other constituents also, was nearly doubled in the milk of the *brunette;* this assertion is well worthy of a farther investigation to support or confute so singular a statement. In ordinary cases, milk contains about 3½ per cent. of casein, and 4 to 6 per cent. of sugar; one peculiarity about the casein being, that it is less readily coagulated by acids than that from cows' milk. The above remarks apply especially to human milk.

The existence of albumen, or an analogous form of free casein coagulable by heat, in healthy milk, is disputed by M. Lieberkuhn, who has recently investigated this subject as well as the relations of casein and albumen to potash. He finds that when albuminate of potash is gently evaporated on a water-bath, it gradually decomposes into potash, and albumen in an insoluble state; and that the corresponding potash compound from milk, by a similar treatment, undergoes a similar decomposition, separating into alkali and an insoluble skin of casein. With perfectly fresh milk the results are precisely similar, the coagulum being insoluble in boiling water. The substance noticed by Scherer, existing in milk, susceptible of coagulation and having an albuminous reaction, is not only obtained by adding excess of lactic or acetic acids to milk, and heating the filtrate, but also from the filtered liquor of boiled milk similarly acidified. Boiled milk, when evaporated, as well as fresh milk, when concentrated at a temperature of 104° F., and the residuum treated with cold water in both cases, yields a liquid which coagulates on boiling. From these conditions, M. Lieberkuhn contends that milk contains neither albumen, nor free casein analogous to it, coagulable by heat. This chemist farther observes that the nitrogenous substance contained in fresh milk exists under three distinct forms: one corresponding to albuminate of potash, another coagulable by heat, and a third separable from the serum by filtration. He also points to the probable identity

of albumen and casein, but abstains from the avowal of any decided opinion on this point.

In addition to the chlorides of sodium and potassium, the alkaline and earthy phosphates (bone earth), and the alkali combined with the casein in milk, Dr. G. Wilson, pursuing the track of some experiments of Mr. Middleton on the constant presence of fluorine in bones, recognized, some two or three years since, the existence of this element in cows' milk, cheese, and whey, existing probably as fluoride of calcium. We do not *know* that it is present in human milk, nor are we aware that experiment has yet shown that this, although most probable, is an actual and ascertained fact. Fibrin, hæmatin, urea, etc., have been recognized in milk; but these are the products of disease, and cannot be reckoned among its constituents.—*Asso. Med. Journ.* Oct. 28, 1853.

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9. *Infusoria in Woman's Milk.* By Dr. Vogel.—No general directions can be given as to whether a woman may suckle or not. In every case the question must be determined by an examination of the milk; and here the microscope proves eminently useful. The author found in that milk which produced sickness in the child, and destroyed the health of the mother after prolonged lactation, immediately after its removal from the breast, infusoria similar to those found in the incrustations upon the teeth (*vibrio bacillus.*) Such vibriones are found especially in women who menstruate or suffer from hemorrhages during this period, the good or bad aspect giving no important indication. The milk has often a fine thick white colour, or is of paler hue; its consistence may be either thick or watery; its reaction is often alkaline, but generally neutral. Under the microscope it exhibits, according to its richness, sometimes but few, at other times many, milk and cream corpuscles; these differ from the corpuscles of healthy milk by their pale yellow colour, their want of metallic lustre, and their speedy decomposition. As regards the infusoria, they are little rod-shaped bodies, dark in the middle, surrounded by a lighter line, but exhibiting neither head nor tail under a magnifying power of 600 diameters; there are, however, feet in great number and of considerable length. The movement of these animalcules was swimming, and occasionally it was very active. Forward movement was worm-like, and an annular structure of four rings was observed. Mostly they twist, screw-like, upon their axes. When they swim in a circle, they always move from right to left. The length is $\frac{1}{1000}$ mmtr., their breadth four times less. They are best seen when the milk is diluted with water. In ammonia, diluted acids (even the lactic), they die immediately.

Children fed upon milk containing these infusoria, become sooner or later attacked by diarrhœa, and the evacuations are of a green colour. This condition disappears as soon as healthy cow's milk is substituted. The author believes that this effect does not proceed from the infusoria as such, but from the same cause which produces the infusoria, namely, a process of fermentation in the milk itself. The ferment is, according to him, the congested and increased heat in the breasts, connected with the general excitement of the sexual system.

But a fermentation, as Jul. Clarus observes, cannot be present, because the author always found the milk alkaline or neutral, and never sour. Were there fermentation, the evolution of lactic acid would, upon the author's own showing, have immediately destroyed the infusoria.—*Med. Times and Gaz.* Nov. 19, 1853, from *Schmidt's Jahrb.* 1853.

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10. *Colour of the Urine.*—"I imagine," says Prof. J. Vogel, of Giessen, "that the colouring matter of the urine is formed by the colouring matter of the blood, and that it consists of a decomposition of blood-disks. If this be the case, and it be premised that the decomposed blood-disks do not leave the body through any other channel than the urinary, it follows that we possess, in the colour of the urine, a ready means of ascertaining, in a given time, whether a large or a small quantity of blood-disks are decomposed in the animal economy. In the normal condition, two to six parts of colouring matter are voided daily, and this expresses the normal loss and reproduction of blood-disks. A chlorotic patient,

or a convalescent, who voids but little colouring matter in the urine, would have but little change and reproduction of blood-disks. Every one whose urine is high coloured would require a constant supply of red blood-corpuscles. The grounds upon which this hypothesis rest are the following:—

"I. In all cases of brown or brownish-black urine, where the urine is most coloured, the direct source of the colouring matter, namely, from decomposed blood-disks, can be easily traced.

"II. In all cases where there is a constant discharge of red urine with increase of the colouring matter, as in fevers, inflammation, etc., there we see, as a common result, diminution in the quantity of the blood-corpuscles, and a corresponding condition of anæmia.

"III. In cases where there is noticed diminution in the production of red blood-corpuscles, with probability of their very sparing disintegration, as in many (not all) cases of anæmia and chlorosis, there do we find diminution in the excretions of the colouring matter of the urine."—*Med. Times and Gaz.* Oct. 8, 1853, from *Vogel and Nasse's Archiv.*

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11. *On the frequent occurrence of Indigo in Human Urine, and on its Chemical and Physiological Relations.*—A. H. Hassall, M. D., communicated to the Royal Society an interesting paper on this subject. He was led, he stated, to the investigation by the following circumstances:—

Some three or four years since, when examining urinary deposits under the microscope, he frequently observed in the field of vision particles of a deep blue colour; so often did this occur, that he could not even then help suspecting that their presence was not accidental; however, no analysis of the blue colouring matter was made at that time, and the circumstance was in a fair way of being forgotten, until the recollection of it was revived by another occurrence. In June, 1852, a sample of urine, freely exposed to the air in an open vessel, was observed, after four or five days' exposure, gradually to change colour; the pellicle or scum which had formed upon the surface of the urine became first slate-coloured, and at length deep blue, with here and there a rusty red tint. The urine also underwent at the same time some remarkable changes; it became thick and turbid, deep brown, greenish, bluish-green, and finally of a faded yellowish-green colour; a considerable sediment was found at the bottom of the glass; this was deep brown, intermixed with a little blue colouring matter, and it had a medicinal smell resembling somewhat that of *Valerian.* In this state, without undergoing any farther material changes, the urine remained for many days. Examined with the microscope, the scum or pellicle on the surface was found to consist of vibriones, innumerable animalcules, and crystals of triple phosphate, with a great many fragments and granules of a deep and bright blue colour. A second sample of the same urine was therefore procured, taking every precaution to avoid fallacy. Gradually, the same changes ensued as in the first sample, and this likewise became blue. Having thus ascertained that the changes observed were due to something contained in the urine itself, the author next proceeded to set aside in open vessels a series of urines all from the same patient, noting the alterations which occurred from day to day; these samples underwent nearly similar changes; but the quantity of blue colouring matter and brown extractive gradually diminished, until at length they were present in such small amount as to be visible only under the microscope, and at last they entirely disappeared.

The results obtained from an examination of the *urine*, the *blue colouring matter*, and the *brown extractive*, are then given by the author; they are as follows:—

The urine.—The urine of the second sample at the time of analysis, when shaken, had a dark greenish-brown colour; but on standing at rest for some time, the colouring matter fell to the bottom, forming bluish-green flocculi, while the supernatant fluid was of a deep wine-red colour. The bottle was set aside, corked for ten days, at the end of which time the bluish-green precipitate had entirely disappeared; but on removing the cork, and allowing free access of air for some time, the coloured deposit was again produced. This was washed with water, drenched with hydrochloric acid, and finally dried; by this means

was obtained a rich blue powder, possessing all the chemical characters and properties of indigo. The urine that was filtered off from the above precipitate was allowed to evaporate spontaneously, by which means it yielded an additional quantity of indigo, which adhered in the form of very small flakes to the sides of the dish. It also gave a rather large proportion of a deliquescent brown colouring matter, which was treated first with alcohol, and then with water. The alcohol acquired a deep brownish-red colour, and the water a dark brownish-green. Both of these solutions were evaporated at a temperature of 160° Fahr. The alcoholic solution furnished a rich brown extractive which was soluble in water, but not in dilute acids, and nitric acid did not produce that play of colours which is characteristic of bile pigment; nor did the precipitate formed with basic acetate of lead furnish a purple liquid with alcohol and free acid. A strong solution of potash dissolved the extractive, and yielded a deep blood-red fluid, which was rendered green and opalescent by boiling. These reactions show that the brown pigment was somewhat like hæmatin in its chemical manifestations, while the aqueous solution of the brown matter was undergoing evaporation, it gave a farther supply of indigo, which was formed most freely at the edge of the liquid. The residue was made black by concentrated sulphuric acid and deep brown by potash.

The blue colouring matter.—Of two samples of this in a dry state, mixed with a large quantity of earthy phosphates, vibriones, mucus, and epithelium, one gave a dark-brown solution with concentrated sulphuric acid, and the other a dirty blue. Both of these solutions were decomposed by water, furnishing in the former case a dark brown deposit, and in the latter a dirty green. In most of their other reactions, however, they presented the characters of indigo; and it is especially deserving of notice, that they were reduced by lime and sugar, giving a liquid from which hydrochloric acid threw down a greenish-blue precipitate. The cause of concentrated sulphuric acid giving with one of these samples a brown solution, and with the other only a dirty blue, was, the author considers, mainly owing to the large quantity of animal matter with which the specimens were contaminated; the acid, from its charring effect on this, would produce a brown or blackish solution, thus obscuring the colour of the solution of indigo.

The brown extractive.—The brown extractive yielded nearly the same results as on its first analysis, and the aqueous solution furnished a few blue flocculi. A portion of the alcoholic extract was heated with liq. potassæ for the purpose of ascertaining whether it contained leucine; and the product, on being treated with hydrochloric acid, gave off a powerful odour, which was somewhat like *valerianic acid;* but the result was too doubtful to be of much value. The author had already referred to the peculiar smell of *valerian* emitted by the extractive of more than one of the samples. He considers that the clearest and most positive evidence was thus obtained that the blue colouring matter in this case was indigo. It was not very long after the occurrence of the first case of blue urine that numerous other instances fell under the author's observation. The urines of all these cases underwent very nearly the same changes as in the first; in some, the quantity of blue colouring matter was found very considerable; in others, less; and in the third class of cases the microscope was necessary for its discovery. In nearly all these cases the blue colouring matter was submitted to analysis, and ascertained on the clearest evidence, to be indigo. The author in the next place considers the question of the source and origin of indigo in the urine. It appeared that in the cases related by the author, coloured indigo was not present in urine when first voided, but that it was gradually formed some time afterwards by a process of oxidation on exposure to the air, being in most of the cases probably derived from the brown extractive, which in its chemical manifestations so closely resembles hæmatin. The author contrasts *cyanourine* with the indigo detected in urine. He observes that the most distinctive tests laid down for cyanourine are its solubility in boiling alcohol, and the action of sulphuric acid upon it, which give a reddish-brown solution; and states he had ascertained that these tests are not to be relied upon, since indigo, when contaminated (as in the urine it frequently is) with a large quantity of animal matter, vibriones, &c., gives a reddish-brown solution with con-

centrated sulphuric acid, from the charring of the animal matter, and in many cases forms a bright blue solution with boiling absolute alcohol; hence, he could not help suspecting that cyanourine and indigo are very closely connected with each other, if they be not identical. He observes, it is at least singular, that while so many cases of indigo were met with, not a single instance of cyanourine presented itself. He also contrasts indigo with apoglaucin, and remarks that this is acknowledged by Heller himself to be nothing more than cyanourine mixed with urrhodin. Taking, then, into consideration the whole of the facts described in this communication, the following conclusions are deduced:—

1. That blue indigo is frequently formed in human urine, the quantity being subject to the greatest variation; in some cases it is so considerable as to impart a deep green, or bluish-green colour to the whole urine; a pellicle of nearly pure indigo also extending over the entire surface of the liquid; while in others it is so small that it can only be detected by means of the microscope.

2. That for the formation of this indigo, it is in general necessary that the urine should be exposed to the air for some days in an open vessel, oxygen being absorbed and the blue indigo developed. Whatever facilitates, therefore, oxygenation, as free exposure to light and air, warmth and sunshine, hastens the appearance of the blue indigo; hence, in summer, the changes described take place much more quickly than in winter; on the contrary, these changes are retarded and even stayed by exclusion of the atmosphere. Blue indigo may even be deprived of its colour and reformed, alternately, according as air is excluded or admitted to urine containing it. From some of the cases recorded, it would appear, however, that blue indigo is occasionally formed in the system, and is voided as such in the urine.

3. That there is usually found with the blue indigo, where the amount of this is considerable, a brown extractive, sometimes in large quantity, the aqueous solution of which, by exposure to air, yields a farther supply of coloured indigo, and which closely resembles hæmatin in its chemical manifestations and elementary composition. There is therefore great reason for believing that, in the majority of the cases here recorded, the blue indigo was derived from altered hæmatin, although it is at the same time probable that in some cases it is formed from modified urine pigment, which is itself supposed to be a modification of hæmatin. Between the greater number of the animal colouring matters there is the closest relationship in chemical composition, so that the transformation of the one into the other would appear to be both easy and natural.

4. That the urines in which the coloured indigo occurs in the largest quantity are usually of a pale straw colour, readily becoming turbid, alkaline, and of low specific gravity. Small quantities of indigo are, however, frequently found in urines possessing characters the very reverse, that is, in such as are high-coloured, acid, and of high specific gravity; but, as a rule, in these urines the blue pigment is usually absent.

5. That as coloured indigo does not occur in healthy urine, and since, where the amount of this is at all considerable, it is accompanied with strongly-marked symptoms of deranged health, the formation of blue indigo in urine must be regarded as a strictly pathological phenomenon, apparently associated rather with some general morbid condition, than essentially with disease of any one organ; although there is reason for believing that the blue deposit is met with very frequently in Bright's disease, and in affections of the organs of respiration, it should, however, be remarked that none of the worst cases of indigo in the urine which the author met with were cases of Bright's disease.

The paper was illustrated by drawings, and a specimen of the indigo, as deposited from urine, exhibited.

MATERIA MEDICA AND PHARMACY.

12. *Rules for the Administration of Chloroform.* By M. Baudens.

1. Never go, intentionally, beyond the limit of cutaneous insensibility.

2. The management of chloroform may be divided into three stages—before, during, and after the inhalations.

3. *Before: Counter-indications.*—Study the patient's constitution; find out whether there exists organic lesions of the heart or lungs; these would be a counter-indication; as are also asthma, aneurism, phthisis, chlorosis, anæmia, chorea, &c., and predisposition to cerebral congestion.

4. The patient's mind should be perfectly calm, and the medical attendant should speak of chloroform as a boon, when carefully administered.

5. The patient should be wishing for anæsthesia, and have full confidence in his medical adviser. If he should feel any apprehension or gloomy forebodings, chloroform should be steadfastly refused.

6. Patients have in all times died from the fear or pain of operations; but the influence of *fear* is now no longer taken into account, and chloroform accused of all the mischief.

7. Chloroform must never be given but for operations of a certain importance, and patients should be fasting.

8. Attention should be paid to the debility which naturally follows serious operations and considerable loss of blood, for the organism thus loses its power of resisting the influence of anæsthetic agents.

9. The operating-room should be of good dimensions, easy of ventilation, and every article necessary in case of danger should be at hand.

10. *During the Inhalation.*—Chloroform should be administered, in hospitals, by persons specially appointed for the purpose; and in town, by practitioners who make it their exclusive occupation.

11. The quantity of chloroform given should be carefully measured, about fifteen minims being taken at once.

12. The length of time during which the patient is inhaling should be counted upon the watch, as also the pulse and the number of respirations. Note should be taken of the force and frequency of the pulsations of the heart; if the latter fall *below sixty*, the inhalation should be stopped.

13. The patient should be in the recumbent position, the head slightly raised by a pillow; and should be given in doses of fifteen minims, the time between them being made gradually shorter.

14. The handkerchief should be first held at a little distance, and gradually brought nearer the face, the patient being spoken to in a kind and encouraging manner.

15. The latter should be frequently asked, whilst he is being pinched, what is done to him; and when he begins to answer with ill-humour, you pinch him, he is on the point of losing the faculty of sensation.

16. As soon as he answers no more, feeling is abolished; the handkerchief should immediately be taken away, and the operation begun, for we should never wait until muscular resolution is complete.

17. Excitement, which often marks the first degree, is a mark that the handkerchief should be *removed*, far from being kept on, as is generally practised.

18. The time has now come to watch the heart and the respiration. On the slightest retardation, and if the symptoms of anæsthesia go on, or are even increased, means should be immediately taken to bring back the insensibility to the first degree.

19. When spasms of the larynx or much cough occur, if foam come to the mouth, if the pulse falls, if breathing becomes embarrassed, if there appears any mark of syncope or cerebral congestion, the inhalations should at once cease.

20. Slight struggling may be resisted, but violent excitement, and the excla-

mation of "I am choking," should be followed by the immediate removal of the handkerchief.

21. For long operations the inhalations should be intermitted, and the chloroform may be resumed as soon as the patient begins to sigh or move about. Anæsthesia has in this manner been kept up for one hour.—*Lancet*, Oct. 29, 1853.

13. *New Method of administering Sulphate of Quinia.*—In the *Révue Médico-Chirurgicale*, for September, 1853, we find a notice of an article by Dr. Bertella, on a new method of administering sulphate of quinia. This plan consists in combining with the quinia an equal quantity of tartaric acid, which has the effect of not decomposing the salt, but of rendering it more soluble, and of causing absorption to take place more readily. He gives at a dose three grains of disulphate of quinia, and three of tartaric acid. The dose at the commencement is from six to twelve grains of each.—*Assoc. Med. Journ.* Nov. 25, 1853.

14. *Iodide of Zinc.*—During the last six months an extended series of trials of a new drug, the iodide of zinc, has been made in Guy's Hospital, on patients under the charge of Dr. Barlow. The salt has been prepared, we believe, to Dr. Barlow's direction, by Messrs. Davenport, and is given in the form of a syrup, of which the dose is the same as of the iodide of iron. Dr. Barlow considers it especially indicated in cases in which the zinc alone might be too stimulating, and in those in which it is desirable to have the effects of both the ingredients. Chorea, struma, cachexia, and some forms of hysteria, form the chief in which it has been tried. In one case of severe strumous superficial lupus, it has been continued for many months and in full doses, with great apparent benefit. It is doubtful whether the cases of chorea have improved more rapidly than they might have been expected to do under the usual treatment by the sulphate.—*Med. Times and Gaz.* Nov. 12, 1853.

15. *Ethereal Solution of Iodine.*—Both from its more rapid evaporation and its higher degree of concentration, the ethereal solution of iodine is a much more powerful counter-irritant than the spirituous ones. A young man was recently in the London Hospital, under the care of Mr. Curling, on account of impeded respiration from a bronchocele. The tumour was not a very hard one, nor yet unusually large, but it extended equally to both sides, and involved also the isthmus. That the trachea was compressed was evident from the dusky countenance, stridulous respiration, dyspnœa, aphonia, and laryngeal ring with the cough. It was feared that tracheotomy might become necessary, as the common solutions of iodine, conjoined with its internal use, had failed to produce any mitigation of symptoms. Mr. Curling now ordered the ethereal solution to be applied; it produced extreme pain and irritation; but a few days afterwards the tumour was perceptibly softer, the man could speak sufficiently loud to be heard across the ward, and the air entered freely into every part of his chest. Mr. Curling has also employed this preparation with great benefit as a counter-irritant in several cases of inflamed joints. We noticed in our reports some weeks ago, from the City Hospital for Diseases of the Chest, the very successful employment of a strong alcoholic solution of iodine applied to the external throat in cases of chronic or catarrhal laryngitis, with aphonia. Since then, the remedy has been tried in numerous other instances, with like favourable results; and although, of course, not always curative, it certainly appears to possess great advantages over all other modes of counter-irritation.—*Med. Times and Gaz.* Nov. 12, 1853.

16. *Aconite as a Local Anodyne.*—The comparative value of several of our local anæsthetics was well exhibited in a case recently under the care of Mr. Curling, in the London Hospital. The patient, a woman of 57, had a patch of dry gangrene on the outer side of her left foot. Its slow increase was attended with such intense pain, that for several weeks she scarcely slept at all. To obtain relief, chloroform, on lint beneath oil-silk, belladonna lotion, and the solution of opium, were severally applied to the part, with, however, but very slight and

temporary benefit. A liniment, consisting of equal parts of the soap liniment and of tincture of aconite, was then ordered to be used in the same manner; and so great was its efficiency, that under its influence the poor woman was frequently able to obtain a very fair night's rest. This case is only one among many in which we have seen proved the powers of aconite as a local anodyne. —*Med. Times and Gaz.* Nov. 12, 1853.

17. *Thlaspi Bursa Pastoris in Hemorrhage.* By Dr. HANNON.—The cruciferæ arrange themselves, according to their therapeutical constituents, into two groups: 1st. Those which contain a sharp essential oil, and are, on that account, used as an irritant to the skin, such as mustard, &c. 2d. Into those which contain less essential oil, but, on the other hand, much astringent and bitter matter, and which are, therefore, useful in assisting digestion and improving the state of the blood. The number of the latter is very great. The whole coast of Northern Europe bears the cochlearia officinalis, a most useful antiscorbutic. The whole surface of Europe produces the nasturtium officinale, cardamine pratensis and amara, and lepidum sativum (garden-cress). On the coast of America and the Antilles is found kakile Americana, another antiscorbutic of great value; the Laplanders, the Kamtschadalen, and the Greenlanders, possess their nasturtium palustre and sylvestre.

All these plants possess an essential oil, containing sulphur, a bitter resin, tannic acid, salts of soda, potash, lime, and iron, with a nitrogenous substance, which, in decomposition, causes the evolution of ammonia.

The thlapsi bursa pastoris was used in the earliest periods, according to Dioscorides, as a remedy in hæmoptysis; in later times, it was recommended by Simon Pauli; and recently it has been approved by Lejèune, Mérat, and Delens, for the same disease, and by Dubois, for hæmaturia and hæmoptysis. Réné Van Oye and Rademacher confirm its utility.

The author found it useful in many diseases, and especially in those hemorrhages in which the fibrin of the blood is diminished. In certain subjects, the flow of blood constitutes the only disease; it occurs spontaneously, and without fever. The patients have, during the first attack, the aspect of good health, a fine rosy skin, and are well nourished; but upon closer inspection there is remarked a want of energy in the organic functions, laboured and slow movements, and general apathy. By frequent recurrence of the hemorrhages, there ensues pallor of the tissues, well-pronounced anæmia; the nervous system seems over excited. Hence follow pains in the joints; the least pressure is followed by ecchymosis, in the form either of petechiæ or purpura; the least wound bleeds obstinately, and requires the repeated application of astringents; coagulation of the blood ensues with difficulty. In women, the catamenia are frequent, profuse, and exhausting. The blood appears serous and pale; the clot is soft, small, and never buffed. The skin perspires easily and abundantly; every breath of air calls forth neuralgia. The urine is pale and copious; the evacuation from the rectum, fluid; and hydropic effusions, such as œdema of the foot, occur readily. The thlaspi bursa pastoris, administered for a considerable time, works in these cases a change in the constitution of the blood, especially when aided by the influence of good air and properly regulated diet. The best formulæ are the succus thlaspi, prepared cold, and of bitter taste, three to six drachms a day. The extractum thlaspi, the fresh expressed juice, reduced by evaporation to the consistence of an extract, one to two drachms a day.—*Med. Times and Gaz.* Oct. 22, 1853, from *Presse Méd.* 1853.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

18. *On the Condition of the Gray Substance of the Brain after excessive Mental Exertion.* By Dr. ALBERS.—In allusion to a statement made in the *Psychological Journal*, by Dr. F. Winslow, in an article entitled "The Overworked Mind," that the gray substance undergoes softening as a consequence of excessive mental exertion, Albers states that he has dissected the brains of several persons, who have for many years undergone great mental labour, and that in all of these he has found the cerebral substance unusually firm, the gray substance as well as the convolutions being remarkably developed. In several of these instances a settled melancholia had taken possession of the mind during the later period of life. He believes, therefore, that, to produce a softened condition, some additional influence beyond mere over-exertion is required. Softening of the cortical substance is a frequent consequence of apoplexy of the convolutions, which gives rise to numerous small depositions of blood, especially at the convex portions of the brain, being accompanied also by an atheromatous degeneration of the small arteries. In this latter condition the quantity of fat is not only accumulated in the arteries, but also in the cerebral substance itself. This degeneration is oftenest seen in gouty subjects, in whom it certainly is not attributable to excess of mental exertion. Several such cases, too, have been met with in rustic labourers. *Brit. and For. Med.-Chirurg. Review*, Oct. 1853, from *Froriep's Tagsberichte*, No. 696.

19. *Pathology and Diagnosis of Cerebral Diseases.*—Dr. SEMPLE read a paper on this subject before the Medical Society of London, Nov. 14, 1853. He commenced by observing, that the present paper might be considered as a continuation of a former communication to the Society on the same subject. He did not intend to present an elaborate essay on cerebral pathology, nor to avail himself of the opinions of authors who had written upon the subject, but merely to present the results of his own experience and observations; particularly selecting those points which were the most obscure, or on which a difference of opinion still existed. It was often a matter almost of impossibility to connect the symptoms of cerebral disease observed during life with the appearances found after death; but, as the term "pathology" included the morbid phenomena of the living structure, as well as the lesions traced after death by the scalpel, it was necessary to consider them in their relations to each other, however obscure the relationship might appear. In some cases, the relation of cause and effect was sufficiently manifest; and Dr. Semple drew attention, in the first place, to diseases of the osseous structure as causes of cerebral disorders. In one case which had come under his notice, and which he had observed for about ten years, the patient had been subject to continual attacks of epilepsy, which had resisted all treatment, and which had at last proved fatal. On a *post-mortem* examination, it was found that the internal table of the skull was thickened, and all the prominent bony processes in the interior of the cranium were much increased in thickness and asperity, as the crista galli, the clinoid processes, the ridges on the petrous portion of the temporal bone, and on the occipital bone. In another case, he attended a patient who suffered from constant pain and heaviness at the anterior and inferior part of the forehead, and who had occasionally had epileptic fits. These inconveniences became so troublesome by their long continuance, that the sufferer was obliged to abandon his business, and life became a burden to him. Acting upon the supposition that this was a case of thickening of the internal table of the skull, mercury was given to salivation, and the iodide of potassium was administered in large and repeated doses for a very long period, and under this treatment the patient eventually recovered, and is now in active occupation. In a third case, a man presented a manifest thickening of the root of the nasal bones; and notwithstanding the vigorous employment of the means pursued in the

last case, he became comatose and died; and on a *post-mortem* examination, there was found to be thickening of the bones in the region indicated, and an abscess in the brain corresponding in situation to the osseous lesion. Another circumstance which Dr. Semple had occasionally observed in cerebral diseases was a want of symmetry in the two sides of the cranium; and although he was not yet prepared to prove that this was a common cause of cerebral disease, yet he thought it worthy of attention, and believed that other cases might be found in which similar deviations from symmetry might prove to be associated with disordered cerebral manifestations. The morbid anatomy of the cerebral membranes is a subject involved in great obscurity, because the most violent symptoms during life often leave very few traces observable after death, and, on the other hand, appearances usually described as morbid are sometimes wholly unconnected with any cerebral symptoms during life. In order to arrive at correct views on this subject, however negative the results might be, the author was in the habit of examining the brains of all cases, whenever it was practicable, whether there had been symptoms of cerebral disorder during life or not, and the conclusion at which he had arrived by these investigations was, that much error and misapprehension existed among authors on this branch of pathology. Such terms as "more or less opacity of the arachnoid," "effusions on its surface," "effusions beneath its surface," and other similar vague expressions, were by all means to be deprecated, because it was doubtful whether these appearances were really morbid at all in many instances, inasmuch as they are often found in cases where no cerebral disease has existed. The disease called acute hydrocephalus in children, was a well-marked instance of meningeal inflammation, and the results of such disease were apparent in the effusion of coagulable lymph between the opposed layers of the arachnoid, and of copious serous deposit upon the surface and in the cavities of the brain; but in adults, the effusion of coagulable lymph was comparatively rare, and the only appearances observed were vascularity of the membranes and effusion of lymph beneath the arachnoid. Dr. Semple inclined to the view of Rokitansky, that inflammation of the pia mater is the usual form of meningeal disease, the apparent vascularity of the arachnoid membrane being due to the injection of the vessels of the pia mater seen through the transparent serous structure lying above it. Four cases were then related, in two of which the author considered that meningeal inflammation undoubtedly existed, and yet after death nothing was found beyond a slight effusion of lymph beneath the arachnoid, and in the two others no cerebral disease had existed during life, and yet the *post-mortem* examinations revealed thickening and vascularity of the arachnoid, accompanied by copious effusion. The diagnosis of cerebral diseases is a point of great difficulty, but of immense importance, and upon a correct judgment in this particular the life or death of a patient often depends. Insensibility and coma depend upon various causes, such as hysteria, poisoning, drunkenness, apoplexy; and all these conditions require very different and often opposite treatment. Again, delirium is produced by opposite states of the brain—by congestion and inflammation, on the one hand; by exhaustion of nervous energy on the other; and some well-marked cerebral disorders are produced by diseases in remote organs, and without any disease of the brain whatever. Two cases of what might be called pseudo-cephalic disease were then related, in one of which the most violent and long-continued convulsions were caused by the eccentric irritation of teething and intestinal derangement; in the other, an infant a fortnight old, the convulsions were apparently due to previous intra-uterine influences, and to the weak and nervous condition of the mother. In such cases, it was exceedingly important that a correct diagnosis should be made; for, although convulsions in infants were always dangerous, and a prognosis must be given with great caution, yet the gravity of the issue was most materially influenced by the nature of the existing disease. The convulsions springing from cerebral inflammation must be promptly treated by leeching, calomel, purgatives, cold to the head, warmth to the extremities; but all these remedies are utterly improper in those forms of convulsive attacks which originate from teething, intestinal derangement, renal obstructions, and other forms of eccentric disease.

The chief point in the discussion was the degree of difficulty attending the diagnosis of cerebral diseases.

Dr. Fuller was of opinion that in true meningitis there is always great congestion, with effusion of lymph, pus, or serum, and that in the absence of these products, we could not infer the existence of the disease from the symptoms. In poisoned blood from disease of the kidney, or from the presence of a narcotic poison, as belladonna, as also in certain rheumatic affections, he had observed great cerebral excitement, with injection of the conjunctiva—that is, all the mere symptoms of meningitis—but these were not cases of true inflammation. Moreover, the opacity of the arachnoid which arises from an effusion underneath the membrane, is not an evidence of inflammation. He then referred to the probable cause of the greater violence of the cerebral irritation in meningitis than in cerebritis, and believed it to be the rapidity with which the various disturbances take place in meningitis. He had observed cases in which very great injury had been done to the substance of the brain without any violent symptoms having been induced, and this he attributed to the slowness with which the injury had proceeded. Thus, in the case of a medical friend, who for many years had suffered only from symptoms resembling tic, and from slight epileptic attacks, he had found a pint of serum effused within the skull, with the circulation through the right vertebral artery impeded by the pressure of a scrofulous tumour, and the left vertebral artery nearly obliterated. He agreed with the author in his remarks upon disease of the calvarium, and instanced the case of a young lady who had suffered for many years from intense headache and epileptic fits, and who could not bear any jolting exercise, in whom a spiculum of bone, two inches in length, was found projecting into the brain.

Dr. Theophilus Thompson considered that thickening of the calvarium was not a likely cause of meningitis, for he had observed that thick-skulled people were dull, and not prone to inflammation; but if it were a cause, he did not think that iodide of potassium would remove it. He believed that affections of the dura mater are among the most obscure of cerebral diseases, while inflammation of the other membranes of the brain is at present well understood. He thought that Mr. Rainey's statement as to the ganglionic character of the arachnoid, would clearly account for the great violence of the symptoms met with in arachnitis, and that it is the locality affected, and not the slowness of the progress, which renders the symptoms of cerebritis less prominent.

Dr. Druitt highly eulogized the paper, and inquired if the author had been accustomed to connect rheumatism with disease of the skull. He (Dr. Druitt) had given colchicum and calomel with great advantage in such cases, and believed those remedies to be more beneficial than iodide of potassium. He considered that thickening of the skull is rarely, if ever, a primary disease; as also meningitis, when not preceded by external injury. If in any case he should observe great cerebral excitement, with congestion of the eye, he should consider the case to be one of poisoned blood, and not of true idiopathic meningitis.

Dr. Sibson believed it to be impossible to arrange the diagnostic symptoms of each cerebral disease in clearly-defined categories, for he had learned from practice, and an analysis of almost all the recorded cases, that every kind of symptom has been found in every variety of cerebral disease. A few cases of epilepsy have thickening of the calvarium, but it is only a small minority; and, in general, he believed it to be impossible to guess even at the existence of such an obscure morbid condition. He also considered that inflammations of the arachnoid, and of the pia mater, could not be separated, just as it is impossible to state that the sub-pleural cellular tissue is not involved in a case of pleuritis. Farther, in such cases, the surface of the brain is always implicated, and it is from this cause alone that the symptoms become more energetic. He regarded the effusion of lymph in a fatal case of meningitis, as essential to the disease, and had seen cases in which this effusion had extended greatly, and yet only a slight stupor had indicated the presence of inflammation.—*Med. Times and Gaz.* Nov. 16, 1853.

20. *Simple Ventricular Meningitis.* By W. Hughes Willshire, M. D.—Simple acute meningitis is, under any of its forms, an unfrequent disease in childhood. At this period, the meningeal inflammation is usually of the granular or tuberculous character, or, at any rate, is subservient to the sway of the important diathetic disorder, scrofula. But if simple acute meningitis of the periphery alone, or combined with that of the base or of the ventricles is uncommon, that limited to the lining membrane of the latter is excessively rare. So rare, indeed, is it, that MM. Rilliet and Barthez have been unable to meet with a single case on record. The former, however, has been witness to one, terminating in ventricular effusion, loss of intelligence, idiotcy, and death. The fatal event did not occur till the end of the fourth month, the disease assuming somewhat of a chronic character. The case seems more particularly interesting, as tending to support the views of those who believe chronic internal hydrocephalus to be due to inflammation of the ventricular lining membrane. The following instance occurring to ourselves, differs in some important points from M. Rilliet's, and appears more fully to demand the qualification of *acute* to the terms ventricular meningitis.

C. W., a boy five years old, was brought to the Infirmary in the month of January. His parents live near the Institution. The child was said to have been ill for more than a week, and to have been an out-patient at the Charing-Cross Hospital. The prescription-paper of the latter showed that antimonials and salines had been given. The patient was very thin, pale, and weak, lying in his mother's lap, scarcely able to speak, though complaining somewhat of his head. There was thirst, loss of appetite, coated and rather dry tongue, but no costiveness. On a review of the whole symptoms, and being impressed by the recollection of an epidemic then prevalent in the locality, I came to the conclusion that the child was suffering from chronic remittent fever of a low type. Still, I was not quite satisfied with the diagnosis, as there appeared something not easily to be described in the case, different from the patients I was then attending. The epidemic then prevalent absolutely demanded bark and ammonia for its satisfactory treatment, and these agents were here given. Under their employment, a great change for the better appeared to ensue, and progressed for an entire week. I watched the case with much interest, being suspicious about my diagnosis, but at the end of the week I entered in my note-book that I thought my patient would do well, and that "my diagnosis is right." The next day a change appeared. The patient became worse, and complained bitterly of his head. There was no costiveness, rather the reverse, but there was some vomiting. The ammonia and bark were stopped, leeches applied to the temples, and blisters behind the ears, antimonials, salines, &c., given. No relief from any treatment was obtained, the child became still worse, semi-conscious, the pupils were dilated, the head thrown back, and the limbs became slightly stiffened. With slight alternations, these symptoms continued for four days, when the limbs became more relaxed, and every now and then affected with a sort of slow shaking, or trembling movement. The remission called the "lightning before death," appeared, then, as was expected; the symptoms became worse, the limbs stiffer, the head thrown back, the hands clenched, and the patient died at the end of the second week since he was first seen at the Infirmary.

The case had been very obscure to us; there had been no definite convulsions, no screaming, no "cerebral respiration," though the latter was frequent, no constipation, and but little vomiting. The constant dorsal decubitus, the peculiar opisthotonic symptoms, and the pyrexial prodromi were the more marked positive phenomena—of course the lesion was cerebral, but that was saying little; there was probably effusion, that was not saying much more. It might be the base, or the hemispheres, or the ventricles, which were more particularly involved, or it might be the meninges alone which were affected, or they might be intact, and true tubercle exist of the cerebellum medulla, or brain proper. Farther, the inflammatory element, if present, might be either of the simple or granular character, the fever might be symptomatic of the cerebral mischief, or reactional, or be the primary disorder, and the affection of the nervous centre be secondary to it.

P. M.—Skull well ossified, convolutions of brain close-pressed, the membranes intensely congested. No milky effusion along the course of the vessels, no exudation of any kind beneath the arachnoid or upon the hemispheres. No granules along the edges of the latter. Cerebral matter showing numerous red points and striæ on section, but no continuous blush. Ventricles greatly dilated, extending the whole length of the hemispheres, and full of serum. In each posterior cornu floated a thick continuous flock or flake of green-coloured purulent matter. The ventricular lining membrane was thickened and vascular in parts, and rough and broken down elsewhere. No central softening existed. A small quantity of green purulent matter was found at the base. The cerebellum was rather softer than natural. No tubercular deposit existed within the cranium, nor within the thorax.

The absence of the ordinary characters of simple hemispheric acute meningitis, of those of the tuberculous meningeal affection, the slight evidence, comparatively, of lesion at the base, and the very positive signs of the ventricular changes, together with the peculiar symptoms, authorize me, I believe, in considering the above case as one of simple acute ventricular meningitis.—*Lancet*, Oct. 8, 1853.

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21. *Abscess of Brain—Disease of the Ear.* By W. Hughes Willshire, M. D.—Disease of the central organs of the nervous system, from more primitive mischief going on in the bony structures adjacent, is of no unfrequent occurrence. This connection between scrofulous disease of the internal ear and the destruction of the brain is occasionally illustrated by such an example as the following: J. F., a boy eleven years of age, and living at Southwark, came under my care in the month of July, 1852. His mother stated that, three weeks before, he went into the country, but returned home ill. He then "had some fits," and soon began to complain of his head. A discharge of matter which had been wont to flow from both ears now stopped, and the pain of the head then became so intense that the boy screamed out from the agony. He then had another fit, and I was now requested to see him. On cross-examination, it appeared that, when two years of age, he had "brain fever," then "inflammation of the ears," and discharge from them, which had troubled him very severely off and on until now. He was of a very scrofulous family. He was quite conscious, lying with his hand placed against the right side of his head, complaining of the pain there. The tongue was coated, the bowels not costive, and there was some fever. Leeches were applied to the temples, blisters behind the ears, and afterwards poultices to the latter organs. Purgatives and full doses of nitre were also given. For four or five days great improvement seemed to follow; so much so, that I began to think the cerebral disturbance had no intimate connection with the disease of the organs of audition. Suddenly, the patient became worse. I found him moaning from the severity of the pain, and sorely complaining of his head. In answer to my inquiries, I was informed that he had squinted, and "made mouths and strange faces." He constantly cried out for some one to press his head hard; consequently, his mother or some relatives sat at his bedside for hours together, pressing with their hands upon his head. In this state he remained for two days, not unconscious, but in what might be called rather a stupid condition, and evidently suffering intense pain in the head. Convulsions supervened, and death followed ten days after he began last to complain of the cerebral symptoms. On examination of the body, a large abscess was found in the left cerebral hemisphere, communicating with the ventricle, and filled with green fetid pus. On the other side, its walls approached at one point just close enough to touch the cranial bone connected with the left ear. The bones of the latter were diseased; but not to the extent of causing a communication between the external meatus and the interior of the cranium. Such, however, would apparently soon have occurred, as the bone was becoming carious at the point where, when we were removing the brain, the abscess burst, emitting much of its horribly fetid contents. The rest of the brain generally was anæmic; but the vessels of the meninges were greatly congested. Unfortunately, the exact character of the walls of the abscess was not carefully noted down at the time; but from recol-

lection it is believed it was of a thin cystic description. In this case, it may be asked, how long the abscess had been forming, and why was the pain so sorely complained of on the right side, whilst the collection of purulent matter existed on the left.—*Ibid.*

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22. *Prognosis and Treatment of Epilepsy.*—The *Union Médicale* for May 17th and 19th, contains an article by Dr. Herpin, of Geneva, on the above subject, of which we now give an abstract.

In the *Union Médicale* for December 1, 2, and 7, 1852, M. Moreau, of Tours, relates nine cases of epilepsy, in which oxide of zinc had failed to arrest the disease, a remedy stated by Dr. Herpin to be of considerable efficacy. Seven of the cases were of the class stated by Dr. Herpin to be most amenable to treatment, and the medicine was administered according to the rules laid down by him in his essay, *Du Prognostic et du Traitement curatif de l'Epilepsie*, published last year at Paris. Dr. Herpin points out the causes of M. Moreau's want of success, in the following manner:—

1. The first remarkable point which may account in a great measure for the different results obtained by M. Moreau and Dr. Herpin was, that eight of M. Moreau's cases were hospital patients, while Dr. Herpin's were private patients. Dr. Herpin observes, that physicians who have the charge of epileptic wards in hospitals regard the disease as almost always incurable; while those who see the patients at home, as far as can be judged from their writings, form a very different prognosis. Tissot, Odier, De la Rive, and C. Vieusseux, all believe in the curability of a fair proportion of epileptic cases. A principal cause of the difference between the opinions of the two classes of practitioners is, that those in private practice generally see the disease from its commencement, while hospital physicians almost always have to treat severe or obstinate cases.

2. M. Moreau had only male patients; Dr. Herpin had more females than males. From an analysis of his cases, Dr. Herpin arrives at the following results:—

Of twenty-six female epileptic patients, sixteen were cured, six were improved, and four were incurable.

Of twenty-four male epileptic patients, twelve were cured, four were improved, and eight were incurable.

There were thus twice as many incurable cases among males as among females.

3. With regard to age, Dr. Herpin has obtained the following results:—

Of thirty-five patients under 20 years, eighteen were cured, nine improved, and eight were incurable.

Of nine patients aged from 20 to 50, five were cured, one was improved, and three were incurable.

Of six patients aged from 50 to 80, five were cured, and one was incurable.

The period of life from 30 to 50 furnishes a third of incurable cases; while the other two do not together supply a fourth. All M. Moreau's cases were from 19 to 50 years of age, the most unfavourable period.

4. With regard to the previous duration of the disease, Dr. Herpin finds that—

Of twenty-three cases, which had existed less than a year, fifteen were cured, five were improved, and three were incurable.

Of twenty-seven cases of from one to twenty years' duration, thirteen were cured, five were improved, and nine were incurable.

While nearly one-half of Dr. Herpin's cases were of less than a year's duration, three of M. Moreau's patients had been ill from fourteen to twenty months, one for two years at least, three for six years, and one for about twenty years; the ninth had recent attacks of vertigo, but had probably had an epileptic attack six months before.

5. With regard to the number of attacks previous to treatment:—

Thirty epileptic patients, who had had less than twelve attacks, furnished only three incurable cases.

Twenty-two patients who had had at least from thirty to a hundred attacks,

furnished twelve completely obstinate cases, being at least five times as many as in the preceding category.

Of M. Moreau's nine cases, one, who was seized with vertigo, had perhaps had a fit; one patient had had only four attacks; one had had about fifty; four from seventy to eighty; one more than a hundred; and one more than five hundred. Besides this, one of the patients had, before the commencement of treatment, paralysis, denoting organic lesion of the brain, which was proved by the autopsy; and another had been twice insane. This latter circumstance was met with in one of Dr. Herpin's cases, in whom, though the conditions for treatment were otherwise favourable, the disease remained incurable.

Besides these causes of failure in M. Moreau's cases, Dr. Herpin points out that the want of sufficient judgment in the choice of treatment is perhaps a more powerful obstacle. He observes that as long as we are unacquainted with the indications of each remedy for epilepsy, we must begin by giving that which experience has shown to have succeeded in the greatest number of cases; then, in case of failure, we must have recourse in succession to other remedies of efficacy. By employing only one, especially in a number of patients placed in the same conditions as to age, sex, etc., we render ourselves liable to fall on the medicine which is not indicated. This is precisely what, it seems, has accidentally happened to M. Moreau.

Oxide of zinc is believed by Dr. Herpin to fail generally in epileptic patients in the vigour of their age, especially in men. Taking the whole of the cases placed in favourable conditions as regarded the number of previous attacks, and which were treated by oxide of zinc, he finds that there were twenty-six cures and five failures—all the latter being in patients between the ages of seventeen and fifty-nine years. On examining into the results of the treatment by oxide of zinc in men of between 20 and 50 years, in order that the conditions of sex and age might be the same as in M. Moreau's patients, Dr. Herpin finds six patients who were almost all in the most favourable conditions for treatment. In one, venesection appeared to have more influence than the zinc in producing improvement. Of the remaining five cases, there were—one cure without relapse, in a patient who had had only three attacks; two cures followed by relapse—in one of these the oxide of zinc failed on the subsequent trial; one in whom improvement was produced at the age of 15, but in whom the same remedy failed ten years later; and lastly, one in whom the disease altogether resisted treatment, although it had been commenced five days after the first attack. Thus, while the total number of favourable cases treated by zinc are in the proportion of five to six, adults furnish only three cases out of five, and in only one of these was the cure permanent.

In adult age, it is necessary to give zinc in large doses and for a considerable time; in childhood and old age, the same result is obtained from smaller doses, and, in some cases, from almost insignificant quantities.

The preceding observations appear to Dr. Herpin to afford sufficient reason for arriving at the following conclusions:—

1. Oxide of zinc seems to be indicated as an anti-epileptic in children and old persons.

2. It often fails in persons of middle age, especially in men.

3. If it be employed in females, it must be given in large doses and for a long time.

Whatever, Dr. Herpin observes, may be the remedies employed, it is of the highest importance that the disease be treated at as early a period as possible. He is convinced that, by perseveringly treating epilepsy from its earliest manifestation, there is a certainty of cure in a large majority of cases. At present, some mistake the first symptoms of the disease; others treat it for a time by means almost always inefficacious, such as bleeding, anthelmintics, etc.; others again try useful remedies, but timidly, and without effect. A small number, chiefly hospital physicians, form a tolerably accurate notion of the choice of a medicine and of the results obtained; but they are placed in the worst conditions for acting at the most favourable moment.

Dr. Herpin promises, at a future period, to publish in the *Union Médicale* the details of some cases in the private practice of himself and others, giving both

the successful and the unsuccessful cases in the proportions in which they have been met with.—*Association Medical Journal*, Sept. 16, 1853.

23. *Chronic Disease of the Stomach with Sarcinæ in the Vomited Matters.*—[Those peculiar bodies termed Sarcinæ, found in animal fluids, have latterly attracted considerable attention. In the original department of this number (p. 96), we have inserted an interesting paper on the subject by Dr. Durkee. Dr. W. H. Ransom relates (*Medical Times and Gazette*, Nov. 12 and 19, 1853) four cases of chronic disease of the stomach with sarcinæ in the vomited matters, and presents the following interesting observations on the conditions of the appearance and pathological value of those peculiar bodies.]

The attention which has recently been drawn to the occurrence of the peculiar bodies named by Goodsir—sarcinæ ventriculi in vomited matters—will, perhaps, be considered a sufficient excuse for the following attempt by analysis to ascertain the conditions of their appearance and their pathological value. I have been able to find notices of thirty-three cases recorded by Goodsir, Bence Jones, Virchow, Todd, Brinton, Hassall, Busk, Hare, Jenner, Frerichs, Miller, and Neale.

Of the 33 cases, the sarcinæ were found in the alimentary canal, or in its discharges, in 26 instances; in the lung in 2 instances, in the urine in 4, in the ventricles of the brain in 1.

Of the 26 cases where they were found in connection with the alimentary canal, they coexisted with disease of some part of its course in 22 instances; with disease of some other part of the body not of the alimentary canal, twice. They were found without evidence of any disease in 2 cases—1 a dog (Frerichs), and 1 a rabbit (Virchow). It must, however, here be noted, that Frerichs states he has found sarcinæ in the stomachs of persons after death who had not vomited during life, but he gives no numbers.

In 12 cases pain was said to be present at the epigastrium, in 14 the point was not noted, in 17 vomiting was present; in 4 cases, the details of which were not given, it is not mentioned; in 5 it was not present; 2 of these were rabbits, 1 a dog.

Of the 17 cases where vomiting was present, it was acid in 12, and the reaction not mentioned in 5.

Acetic acid was present in the vomited matters in 5 cases (with the normal acids), and butyric acid in 2 cases; in 10 cases it is not mentioned; in 10 cases a scum was noted on the vomited matters; in one of these the gas was shown to be carbonic acid by Professor Graham, but in this case torulæ were also present; in 8 of the 26 cases torulæ coexisted with the sarcinæ; in 15 cases they were not mentioned; in 3 they were not present.

Of the 17 cases of vomiting, the quantity was very great in 12, small in amount in 2, and not noted in 3.

In only 10 cases was the colour of the vomited matter stated; of these it was brown in 8, nearly black in 1, and called dirty in 1.

Of the 17 cases, blood was noted only three times in the vomited matters. Albumen has been twice found independently of blood, by Dr. Hassall.

Food has generally been found in the vomited matters. Sugar has been detected, and there can be little doubt it is always present when starch food is present. In a few cases, large quantities of ropy mucus have been said to be present.

The bowels were confined in 8 cases, regular in 2, and not noted in the remainder. The feces are not noted sufficiently often as to colour, to render any numerical statement of value; they have been noted three times as nearly black, and in two of these I sought in vain for blood, though albumen was present in one of them.

In 9 cases wasting was present; in 2 it was unimportant; in 1 it was not present. In the 22 cases, the duration of the symptoms has varied from 4 months to 23 years. The ages of persons in whom they have occurred have varied from 1 year to 63 years. The urine was found to be alkaline in 3 cases; normal in 2; not noted in 17.

Of the 26 cases, 11 gave *post-mortem* results: 1 a healthy rabbit, Virchow; 1 rabbit with marasmus and ichthyosis, Virchow; 1 case of diabetes, Dr. Brinton; 1 of rupture of the diaphragm, Mr. Busk; 1 of pleurisy with vomiting, Mr. Busk; 2 cases of cancer of abdominal organs, the Writer;[1] 2 cases of non-malignant ulcer of the stomach, and perforation, Dr. Todd and the Writer; 1 case of simple stricture of the pylorus, given above; and 1 mentioned at the Pathological Society, details imperfect.

Of the 12 cases where the vomiting was acid, 3 took carbonate of soda with relief; 2 took carbonate of magnesia with relief; in 1 creosote relieved the sickness; in 7 sulphite of soda was given, in all with relief; in none did a cure result.

We may conclude from the foregoing, that sarcinæ are not peculiar to the alimentary canal as a locality. When they exist there, they are not necessarily attended with notable symptoms. Contained in the above is the conclusion, that they do not necessarily cause vomiting. Sarcinæ are not necessarily accompanied by acid fluids. Virchow found them in an alkaline fluid in the lung; therefore, they do not cause the development of acids in the stomach; which is farther proved by the continuance of acid vomiting after sarcinæ have disappeared. The sarcina has no constant relation to the torula cerevisiæ, none to copious watery vomiting, none to alkalinity of the urine, none to any single anatomical condition of the organ in which they appear.

Notwithstanding this series of negatives, it may be affirmed, that sarcinæ very commonly coexist with the following group of symptoms, viz: obstinate chronic vomiting of large quantities of an acid, watery fluid, which forms a scum on the surface; epigastric pain, constipation, and wasting.

In these cases, the vinous, the acetous, and perhaps the butyric fermentations are set up in the stomach, and probably as a result of the too long delay of the food there.

The cases which have occurred presenting this group of symptoms, have been pathologically most varied; but pyloric obstruction, either proved by *post-mortem* observation, or inferred from the symptoms during life, appears common to all.

Sulphite of soda has been found useful only as a palliative in these cases; magnesia and carbonate of soda have also afforded relief. Some cases appear to be as much relieved while taking certain bitter herbs; and some have very variable and irregular periods of improvement, traceable to no cause. In those cases where no notable symptoms attended the sarcinæ, the conditions were present which might have caused some delay of the food within the stomach, and thus have permitted some peculiar fermentative process.

Before coming to a conclusion, however, it may be well briefly to consider the question as to the nature of the bodies called sarcinæ; after which it will, I think, be easier to decide on their influence and pathological significance.

Goodsir himself considered them to be vegetable organisms; they have been since considered animals by Busk—degraded muscular fibre by Schlossberger—a higher stage of development of torula by Simon; but these views can no longer be entertained. The incorrectness of the latter view has been proved in the case of Hemm, where no torulæ were present; and the supporters of the two former opinions have themselves since changed their views. Meyen, Köliker, Hasse, and the most competent observers in this country, support the original view of Professor Goodsir; Virchow, who has devoted considerable attention to the subject, appears unable to convince himself of their really cellular structure, without proof of which he considers it to be impossible to class them as plants. With hesitation, then, I express the opinion, that their cellular nature can be satisfactorily determined, and feel disposed to support Goodsir's view, which the following observations on the growth and development of these bodies bear out. In the vomited matters of Hemm, examined

[1] One of these cases was medullary cancer of the mesenteric glands and small intestines, in which sarcinæ were found after death in the duodenum. It is not given above.

May 8, I observed that the rectangular cleavage had gone on so much more rapidly than the growth of each individual square, that these latter were, in some clusters, reduced to mere points; in these cases, the primary groups of four, near the margin, were a little loose and separated from the cluster; and it was then easy to observe the true cellular structure; for in this stage, the nucleus, which is distinguishable by its high refractive power, and faint greenish-yellow tinge, is separated to some distance from the colourless cell-wall, which, in the more advanced stage, it is in contact with and obscures.

Floating free, were seen also transparent round cells, which contained sometimes two nuclei, easily recognizable as identical with those of the sarcina, and showing a mark, as if about to split again into four, sometimes three, one of the nuclei having divided before the other, which often occurs in the clusters; sometimes four nuclei, and these in various states of approximation, according to the stage. These appearances seemed strongly to point out, that one mode of propagation of these organisms is the throwing off of single cells as gemmæ, which then, when free, undergo the same series of changes as the parents did.

The conditions necessary to the growth and development of sarcina are of more consequence to the present inquiry; but of these little or nothing is known. No one has yet succeeded in cultivating it artificially, though several attempts have been made; and it would seem very probable, reasoning from analogy, that, like the yeast-plant, it occurs in the presence of certain matters essential to its growth, and thus may be characteristic of some peculiar fermentation.

Dr. Todd appears to have entertained this view of its nature, as he considers it to be developed in the stomach when food is too long delayed there, and does not expressly attribute any effects to its agency.

Lehmann, Frerichs, and Virchow also consider it innocuous. Dr. Jenner, to judge from the principle on which he has founded the treatment by sulphites, attributes some effects to it; and Dr. Hassall does not hesitate to say, that "the presence of sarcina satisfactorily explained the intense acidity of the contents of the stomach, upon which, again, the frequent attacks of vomiting depended."

That this latter assertion is incorrect, is, I believe, proved in the foregoing analysis; and it is, at the same time, shown with equal certainty, that the most severe symptoms which often coexist with sarcinæ depend on other causes, namely, anatomical lesions. It remains to decide whether the sarcinæ produce any unpleasant symptoms when present, in addition to those caused by the disease of the stomach; and if they ever occur as primary causes of gastric disorder.

The relief afforded by the use of sulphites is great and indisputable: and as these destroy the sarcinæ, it appears at first sight strong evidence in favour of the opinion that sarcinæ are the cause of the symptoms relieved; however, when we remember that the relief is but temporary, and all the symptoms return under the use of sulphites, though the sarcinæ are still absent, the evidence becomes weaker; and when we farther reflect that sometimes as much benefit is derived from carbonates of alkalies, which do not destroy the sarcina, as the sulphites produce, the action of these latter can no longer be brought forward as important evidence in favour of the active agency of sarcinæ. Indeed, it appears to me not improbable, that much of the benefit derived from the sulphites is due to their action, in the same manner as carbonates, in neutralizing the acids of the stomach, and something also to their influence in checking the growth of torulæ and the evolution of carbonic acid gas; subtract these from the sum of relief sulphites afford, and but little remains to be accounted for. From the analogy of sarcinæ with the humbler forms of fungi or algæ, which so abundantly infect the body, living and dead, wherever some decomposition is going on, as in the mouth and in the intestinal canal, I should also conclude that they do not exercise any important influence on the functions of the organ in which they exist. Briefly it may, then, be stated, that it is proved that sarcinæ do not produce any notable symptoms in those cases where they coexist with disease of the stomach; and it is not yet shown that they have any—even the slightest—effect. Almost with equal certainty may it be said, that they do not excite primary gastric disturbance.

24. *Pathology of Cholera.*—Dr. J. R. Cormack, in an interesting paper on cholera (*Assoc. Med. Journ.* Nov. 11, 1853), gives the following summary of his conclusions relative to the pathology of that disease.

1. Cholera is a fever, intimately related to those fevers which depend on malaria.

2. The intermittent or remittent type can be generally recognized in the milder, and also not unfrequently (though less distinctly) in the severer cases.

3. The stage of collapse ought to be considered as an aggravated cold stage of the paroxysm of a pernicious fever, which may spontaneously terminate in death or reaction.

4. The least dense portion of the blood has an excessive tendency to exude through the capillaries of the stomach and bowels, and pass from the body by vomit and stool.

5. The inspissated residual blood, being unable to pass through the small pulmonary vessels, causes congestion of the lungs; and, as speedy consequences of this condition, paralysis of the right side of the heart from overdistension, asphyxia, and other subordinate derangements of the vital actions.

6. Death may take place from—

a. Asphyxia.
b. Necræmia, *with* loss of the least dense portion of the blood by stool and vomit.
c. Necræmia, *without* such loss of the least dense portion of blood as can be discovered during life—the exudation remaining within the stomach and intestines.
d. Toxæmia, from absence or deficiency of sanguineous depuration.
e. Inflammation of lungs or other organs supervening in convalescence.
f. Debility.
g. Gastro-enteritis.
h. Two or more of the above causes combined.

7. The anatomical lesions found on dissection vary with the causes of, and circumstances attending, death.

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25. *Treatment of Cholera.* By John Rose Cormack, M. D.—The advocacy, by many, of a uniform and empirical system of treatment of cholera, has greatly tended to obstruct the progress of rational inquiry. Several plans and particular remedies have been found useful; and practitioners, impressed by the published account of this success, have too often contented themselves with empirically repeating the instructions of others, without carefully analyzing the facts, and seeking for a rational explanation of the *modus operandi* of the therapeutical agents which they employ. The stage of the disease has not been sufficiently noted in relation to the therapeutic means employed; and recoveries have been too largely designated cures. With one, capsicum has been the specific; with another, camphor; with another, sulphuric acid; with another, acetate of lead; with another, quinia; and so on might the list be indefinitely extended. Now, that all of these and other medicines are *par excellence* cholera remedies, I perfectly believe; and it seems to me that a more successful treatment is to be discovered by a judicious application of the means which we possess, than by searching for some new specific.

It seems to be of primary importance to bear in mind that we have a poison-disease to deal with, resembling, if not indeed identical with a pernicious ague; that it has a course to run, which may be modified and curtailed, but which, even when let alone, shows a disposition to terminate in recovery. We have, therefore, in the first stage, in which chills and other premonitory symptoms of discomfort may be present, to adopt measures which may be regarded as prophylactic rather than curative. It is in this stage that the pernitrate, or some other preparation of iron, and the disulphate of quinia, are of signal benefit. Here, however, we must not follow a blind empiricism. We must, if the digestive system is at fault, combine with the use of these special medicines a judicious alterative system; and, should there be any tendency to copious watery evacuations—the serum of the blood—we must be prompt in our administration of those remedies which are generally termed hæmostatics; among

which may be particularly mentioned quinia, sulphuric acid, nitrous acid, acetate of lead, creasote, and nitrate of silver. If the case should proceed a little farther, in spite of our endeavours to arrest its progress, or should the case, from its inherent intensity, or from neglect, not present itself for medical treatment till the secondary effects of the loss of serum have become apparent, we may probably find it useless to think of the quinia, and be obliged to treat the cramps and collapses which threaten speedy dissolution. The necessity for diffusible stimulants is now apparent; and, of them all, as a general rule, camphor will be found the most useful. It can be conveniently administered in large doses by dissolving it in chloroform; and the solution combines so well with creasote, that it will often be found prudent to confine our administration of medicine to frequent doses of a mixture of camphor, chloroform, and creasote. The chloroform is useful as affording facilities in dispensing; and it cannot, in the small quantities administered, do any harm. The camphor acts quickly as a diffusible stimulant; and the creasote has a powerful effect in restraining the serous discharge. Indeed, I am inclined to think that its beneficial effects are not much, if at all inferior in this respect to those of sulphuric and nitrous acids. External warmth, and the use of stimulating embrocations, are very beneficial in conjunction with the internal use of camphor. The suppression of urine is not a symptom which is to be relieved by the administration of diuretics; it is a necessary consequence of the congestive paroxysm of the disease, and its removal is likely to follow the cessation of that paroxysm.

Enormous doses of opium, of calomel, and of other powerful drugs, have been given to cholera patients; and there can be no doubt that such substances, when introduced into the system when in a state of collapse, are not likely to produce any very suddenly appalling effects. And, indeed, in a vast number of cases, they seem to lie as quietly in the stomach of the cold cholera patient, and to produce as little effect, as if they were deposited in a glass bottle. Should the patient, however, emerge from the state of collapse, he runs as great a risk from the poisonous doses of these medicines which have been placed in his interior, as he has just escaped from the pestilence. Large quantities may certainly pass off by the bowels, unacted upon; but it cannot be questioned that in a very great number of cases which have been treated in the way mentioned, patients have had their convalescence abruptly arrested by fatal narcotism or exhausting salivation. The use of opium and calomel, in ordinary doses, is often necessary; but the inordinate doses of these medicines formerly, and perhaps still employed by some, cannot be too much condemned.

The importance of arresting the serous discharge, and of maintaining the warmth of the body by the application of heat externally, cannot be overestimated. In fact, the judicious carrying out of these intentions constitutes the essence of the treatment of cholera. Other therapeutic measures may be regarded as liable to considerable variety, according to circumstances, and as valuable and auxiliary rather than as always indispensable. The prompt arrest of the serous discharge, by creasote, sulphuric acid, nitrate of silver, or other remedy, has undoubtedly saved innumerable lives; and from amid the chaos of contradiction, depreciation, and laudation, in which the merits of special modes of treating cholera are involved, the diligent application of warmth to the surface can be extricated as a measure of established value.

Mr. Barwell, in a little work just published, says: "It is a grand essential to keep up the temperature of the patient, since the tendency to become cold is certainly a great characteristic of this disease. Hot bottles should be placed to the feet, and inside of the thighs; and India-rubber bags filled with hot water to the loins and abdomen. The bedclothes must be ample, and should be so arranged, by means of an extra blanket wrapped round the shoulders, or passing round the chest and under the arms, that he does not bare that part to the cold in his restless jactitations, nor in rising on the elbow to vomit, as he may perhaps frequently be obliged to do." These recommendations of Mr. Barwell are sound and practical. They are, moreover, firmly based upon facts which came under his observation in St. Thomas's Hospital. In the following passage, he states very clearly, and, I think, very correctly, the relative value of internal stimulants and external warmth in cholera; and he also refers to the hospital experience already referred to, upon which his opinions are founded.

"Stimulants," says Mr. Barwell, "such as brandy, ammonia, or wine, though decidedly useful in their place, have not such effect in restoring circulation, and exciting the system to greater action, as in collapse from other disease; indeed, considering the difference of its cause in this and in other maladies, it is not to be expected that they would be as beneficial; for prostration usually occurs in consequence of nervous shock, and consequent loss of nervous power; therefore stimuli which act upon that system are naturally, in those cases, such as would benefit. But in this disease there is comparatively little loss of nervous power; in fact, with so great disturbance of the circulation, the retention of nervous power is marvellous. Our remedies ought not, therefore, to be directed through that system, but we should, if possible, find some means of acting on and recalling the circulation, without exciting the nervous centres; and the best mode of doing this is by external heat. This principle of combating the deadly cold collapse was not found or recognized at St. Thomas's until after several cases had been treated at the hospital, and the general inefficacy of medicines or of stimulants proved. Though a certain number under the treatment then adopted recovered, still, the whole result was unsatisfactory; thus, of twenty-eight cases of perfect collapse, before external heat was used, seven only recovered—a very small proportion; but, after this was employed, sixty-one patients were treated by some mode in which this formed an essential part, and of these, twenty-seven recovered, or not very far from half the whole number." (P. 97.)

Did space permit, I could adduce much evidence of the same description, in addition to that which has now been quoted. In fact, I could show that the success which many have ascribed to favourite pharmaceutical nostrums, ought, with much greater probability, if not with absolute certainty, to be ascribed to the external warmth employed along with the drugs.

Having now glanced at the general principles upon which medicines ought to be employed in the treatment of cholera, I would now remark, that I have not enumerated every drug which may be usefully employed, and have selected those with the operation of which I am personally most familiar. This much, however, may be added, that they are good types of the respective classes of remedies to which they belong.

The formulæ to be adopted must of course be varied in accordance with the circumstances of each case; and it is by a ready power of modifying these formulæ, that the skill of the practitioner is displayed. The formulæ cannot be too simple. No therapeutic advantages flow from the multiplicity of ingredients; and by administering remedies for the purposes of clinical study, as well as of cure, it is obviously necessary not to give more than one medicine, or one class of medicines, at the same time.

The following medicines possess, in a high degree, the power of arresting the serous diarrhœa, which generally precedes collapse by a good many hours, and which is the immediate cause of that collapse, as well as of the cramps:—

Creasote;	Nitrate of silver;
Turpentine;	Quinia;
Sulphuric acid;	Gallic acid;
Nitrous acid, and	Alum; and
Nitro-sulphuric acid;	Acetate of lead.

1. *Creasote.* Some patients refuse to take creasote, from a dislike to its odour; but if one or two doses of two or three drops can be taken every hour or two hours, in mucilage, I prefer it to any other means of cure in serous purging. It hardly ever fails.

2. *Turpentine* may be used in place of creasote, in doses of ten minims. I have in several cases of diarrhœa found it quite successful.

3. *Sulphuric Acid.* The use of this acid in diarrhœa is by no means new. The late Dr. Anthony Todd Thomson, in his *Dispensatory* (edit. 1837, p. 762), wrote as follows: "When combined with mucilages, it has been beneficially given in passive diarrhœa, operating on the relaxed nervous coat of the intestine as an astringent. The usual dose is from ten to thirty minims, *but this dose may be very often repeated.*" In later years, its use has been revived; and several writers in the various medical periodicals have spoken in high terms of

its efficacy. Among these, I may mention Mr. W. I. Cox, of Kensal Town, who has also employed it in cholera (*Lancet*, for August, September, and October, 1849, etc.); Mr. W. Griffith, of Eaton Square (*Ibid.* Oct. 4, 1851); Dr. G. B. Payne; Dr. Miller, of Stoke Newington; Mr. Edgar Sheppard, of Enfield (*Provincial Medical and Surgical Journal*, for September 15, 1852, and *Association Journal*, for March 18, 1853); and several other practitioners. To Mr. W. I. Cox is due, as far as I am aware, the merit of having first employed sulphuric acid in the treatment of *cholera*. In a tabular view of the result of treatment of ninety cases, given by him in the *Lancet* for January 26, 1850, five are mentioned as having been treated with sulphuric acid, generally in combination with Dr. Ayre's method. Four of the cases so treated recovered; but we can scarcely draw a conclusion from so small a number.

Dr. Fuller, of St. George's Hospital, in a paper lately published in the *Medical Times and Gazette*, speaks in high terms of the efficacy of sulphuric acid in arresting diarrhœa. In bilious diarrhœa, and in certain chronic diarrhœas, he says it is of little or no avail; but in epidemic diarrhœa, in "acute autumnal diarrhœa," and in more decided choleraic diarrhœa, he has known no single instance of its failure. He gives it in doses of half a drachm, mixed with water, every twenty minutes or oftener, and the effects produced are described as remarkable; heat returns to the extremities; the nausea and vomiting cease; the purging is stayed; the cramps subside; perspirations generally break out; the tongue becomes moist, and slightly coated; the intestinal evacuations become healthy; and the pulse regains its normal steadiness.

In epidemic cholera, Dr. Fuller has had no experience in the use of this remedy. He would give it in doses of ♏xl or ʒj, five or six times in an hour, simply mixed with water; and he is opposed to the employment at the same time of brandy or any strong-flavoured stimulant or carminative. Calomel, if it is thought necessary, may be given at the same time with, or after the acid. Mustard, bran, or other warm poultices or fomentations, may be applied; they usually afford relief. From the prompt action of sulphuric acid in arresting diarrhœa, Dr. Fuller expresses great hopes as to its superiority in cholera over other medicines which require a longer time for their action.

4. *Nitrous Acid and Nitro-sulphuric Acid.* Mr. W. J. Anderson, in the *Association Journal* of Nov. 4. 1853, recommends a combination of nitrous acid and sulphuric acid. He says: "Can a remedy be found which will readily yield up its oxygen, and supply that element to the impure blood; and at the same time, by its astringent properties, tend to check the enormous exudation which takes place from the mucous surface of the intestinal canal? In our present state of knowledge, some of the mineral acids appear to be the best adapted to this purpose; and, for certain reasons about to be explained, a combination of nitric with sulphuric acid seems to me to be preferable to any other. The acid should be administered in tolerably full doses, and repeated at intervals varying according to the nature and urgency of the case. For an adult, we may give acidi sulphurici diluti fʒij, acidi nitrici diluti fʒj, in a six-ounce mixture, an ounce being the dose for an adult.

Mr. Hope, of Chatham, in the *Edinburgh Medical and Surgical Journal* of July, 1826, recommended nitrous acid in cholera. He spoke strongly of the efficacy of the following mixture: ℞. Acidi nitrosi ʒj; Misturæ camphoræ ℥viij. Misce, et adde tincturæ opii ℈ij. Of this, one-fourth is to be taken every three or four hours. Mr. Whiteman, of Putney, informs me that he finds nitrous acid so prompt and so satisfactory a remedy in epidemic diarrhœa, that he trusts to it in preference to every other medicine. He often combines with it a little laudanum; but, in the majority of cases, he uses the acid alone. I have not used nitrous acid in diarrhœa or cholera; but I have no doubt as to its value in arresting the discharges.

5. *Nitrate of Silver* I have not given in cholera and diarrhœa, except in the form of enema. It is valuable in this form. My experience is too limited to enable me to compare the efficiency of enemata of nitrate of silver with enemata of acetate of lead and of alum.

Dr. Lever and Dr. Aitken are the principal English writers who advocate the use of nitrate of silver in cholera and diarrhœa. On the continent, the authori-

ties by whom it is recommended are Hirsch, Canstatt, Boudin, Bouchardat, and Trousseau. Dr. Charles Lever, in 1832, extolled the nitrate of silver as a remedy in cholera. In a forlorn case, he administered thirty grains dissolved in three ounces of distilled water, which the patient swallowed at once. She lay quiet for six minutes, when she vomited a small quantity of whitish turbid fluid. She had no return of the vomiting, fell asleep, and recovered. [*Johnson's Medico-Chirurgical Review*, Oct. 1834, p. 444.] I give ten grains in half a pint of water as an enema. Hirsch prescribed it in the form of mixture; and I am sure that it is a safe medicine in this form, as I have given it internally in other diseases, dissolved in abundance of water. The danger lies in giving the medicine in too concentrated a form.

6. *Quinia.* Of the power of quinia to check epidemic diarrhœa, and to thus arrest cholera in what may be regarded as its first stage, I feel well assured, from an extensive use of the remedy. It is true that I have generally combined it with sulphuric acid, or with iron, and sometimes with both; so that my facts are not available for the purpose of accurately determining the value of the quinia given alone. Dr. James Bird and others have, however, from ampler data, arrived at the same conclusion. Dr. Mandl, in the *Gazette Médicale* of October 29, p. 682, speaking of the importance of checking the diarrhœa which he has generally found in the initiatory stage of cholera, says, "the most powerful means of arresting epidemic diarrhœa is by administering disulphate of quinia in doses of ten centigrammes (a grain and a half) every two hours." He says that he has seen cases of cholerine, in which opium and injections had failed to arrest the discharge from the bowels, cured by quinia in twenty-four hours. Dr. Charles Bell, who has written so ably in favour of the doctrine that cholera is a fever of a remittent or intermittent type, naturally advises quinia. He says: "If asked what I should do in a case of cholera, I should answer, that that depended very much on the stage in which I found my patient; but, in all cases and in all stages, I should certainly give a largely diluted solution of some salts of iron and quinia, with a view to counteract the morbid inactivity of capillary congestion, and repeat it as often as the patient would drink of it, till warmth was restored." The practice is, there can be little doubt, correct; but it is equally probable that it is a method well calculated to stop the diarrhœa, which Dr. Bell strangely considers salutary. He makes this dangerous announcement: "Diarrhœa is a natural mode of relief to congestion, and thereby tends to the prolongation of life." The hemorrhage from the stomach thrown up as black vomit in yellow fever, is nature's mode of relieving congestion; but it is not a salutary hemorrhage. Within certain limits, a serous or a sero-sanguineous discharge may be harmless, or even useful; but inasmuch as it is physically impossible for the blood to circulate when it has been deprived of its serum, so it is imperative upon the practitioner to restrain the serous evacuations of cholera.

7 and 8. *Gallic Acid and Alum.* I have often used these remedies in the diarrhœa of phthisis, and occasionally in epidemic cholerine. They are less to be relied on as means for arresting serous diarrhœa than creasote and the mineral acids. They are not superior, and hardly equal, to logwood and catechu, as mere astringents; but I know that some authors regard them as especially the astringents to be used in cholera and serous diarrhœa.

9. *Acetate of Lead* may be used internally alone, or in combination with opium. It is generally a prompt astringent when used in the form of enema.

I have not space to enter upon a consideration of all the several reasonable methods of treatment which have attracted the attention of the profession, and deserve to be spoken of with respect. I can only notice one of them at present.

The sulphur plan, as advocated by Mr. Grove, of Wardsworth, has evidence in its favour, though I do not think that the theoretical ground—the fungus theory of cholera—upon which it is advocated, is tenable. Mr. Grove uses the following formula: ℞. Sulphuris precipitati ʒj; sodæ bicarbonatis ʒj; sq. lavendulæ compositi ʒvj; aquæ q. s. ut fiat mistura ℥iij. A teaspoonful of this is taken every half hour or every quarter of an hour. Mr. Grove informs me that the effect of the medicine is to restore warmth, and promptly to check the serous discharges.

I believe Mr. Blacklock was the first author who recommended sulphur as a remedy for cholera. Although I have no personal experience of its virtues, I may quote, in connection with this subject, the following passage from a letter dated September 22, 1849, which I received from a non-medical friend residing in Edinburgh:—

"I saw a man to-day from the south muirs, who told me that his wife and he, as well as many of the people of his remote landward parish, had been very unwell; and, from the symptoms which he mentioned, it was clear that they had suffered from cholera, and had been saved from it. They had no medical man near them, and got no medical attendance; yet there were no deaths. As soon as they found cramps come over them, they took a teaspoonful of powdered brimstone, or sometimes the flowers of sulphur, mixed with a little whiskey, to which was added water, if the sick could not otherwise swallow the dose. The man described the cure as certain and very rapid. Try this on the London folks; it may serve the afflicted, and do you much good."

Mitchell says that "the sulphureous localities of the sickly island of St. Lucia are its only salubrious places. Cities, too, which abound in sulphur products, enjoy an immunity from ague, for which they are everywhere noted. Immediately around the sulphur works, and factories for making gunpowder and sulphuric acid, the vegetation and the ague disappear together." To this we may add, that, in 1849, during the bombardment of Rome, that city suffered much less than usual from malarious fevers—a fact which induced Mr. Walker to recommend cannonading and the discharge of fireworks, as measures likely to ward off or prevent the spread of cholera. The rushing of columns of air, caused by the production of a vacuum, is, however, the more probable explanation of the benefits (if any) which resulted from the cannonade. Mr. Blacklock (Madras, 1848) says: "I hope yet to see the day when sulphur, in small quantities, will be regularly issued to every soldier in the field, in India, say forty grains per day while actually marching, and twenty grains per day during halts, as a sure way of warding off this terrrible disease; and I have a firm belief that sulphur, so employed, will be as effectual in banishing cholera from our armies, as lime-juice has been in eradicating scurvy from our fleets."

Mr. Grove quotes the following curious passage from the *London Practice of Physic*, a work published in 1692: "In the year 1670, about the autumnal equinox, a world of people here were seized with a most dangerous flux (though without blood), and joined with a cruel vomiting, which presently caused great faintings and a total decay of strength. For the cure of this disease, no evacuation did good; nay, bleeding, vomiting, and purging did hurt; only cordials, and those of the hottest nature, to wit, such as abounded with *spirit and sulphur*, did good." (P. 22.) From this it would appear that the whiskey and sulphur treatment of the south muirs of Scotland is an old tradition.

Manec administered sulphur in all possible forms, in his treatment of cholera in the Salpêtrière in 1849.

Sulphur is a stimulant of the capillary circulation, and so is camphor, one of our best remedies against collapse. Perhaps the combination of the sulphur with hydrogen is the cause of the augmented heat in the surface of those who take the former in repeated doses. The characteristically offensive smell of sulphuretted hydrogen gas is sufficient proof that this chemical action does take place. The therapeutic action of sulphur is, however, yet open to investigation.

The treatment of cholera cannot be reduced to any routine formulary, but ought to be adapted to the particular condition of each patient in each stage of the disease.

The principal indications of treatment may be thus summed up:—

1. The "rice-water" vomit and purging require to be energetically subdued by quinia, sulphuric and other acids, creasote, nitrate of silver, and such like remedies.

2. In actual and threatened collapse, external warmth, stimulant embrocations, and those internal stimulants which act on the capillaries, are of signal benefit.

3. In reaction, and during convalescence, local inflammations and congestions require to be guarded against or subdued; and rational means must be adopted

to restore the secretions of the liver, kidneys, and skin, but particularly of the two former.

4. Last, though not of less importance, the character of the fever should be modified, and a repetition of the paroxysms guarded against, by change of air, or by the administration of quinia, which, in the majority of cases, from the existence of anæmia, ought to be conjoined with iron.—*Assoc. Med. Journ.* Nov. 11, 1853.

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26. *Iodide of Potassa in some forms of Chronic Periosteal Rheumatism.*—Dr. W. R. Basham states that there are some cases of chronic periosteal rheumatism in which the curative agency of the iodide of potassa is very conspicuous, while in others, having many symptoms in common with them, its effects have been doubtful or nugatory.

"From time to time," he says, "cases have come under observation, presenting the usual symptoms of chronic rheumatic pains, gnawing and erratic, with paroxysms aggravated by atmospheric changes; and there has been diffuse tenderness of the periosteal surfaces nearest in contiguity to the skin, as the scalp, clavicles, ulna, tibia, &c.; sometimes distinct tumefaction with exquisite tenderness; and these nodal elevations in some have been evanescent, in others persistent during the whole course of the malady. It has been frequently noticed, and practitioners of experience cannot have overlooked the fact, that some of these cases materially and rapidly improve under the administration of the iodide of potassa, while in others, with symptoms in all respects identical, no benefit has been derived or improvement become apparent till the patient has been put through a course of the bichloride of mercury and sarsaparilla.

"I was once inclined to think that these varying results depended on peculiarity of constitution, and that the treatment of such cases by one or other of these remedies must remain, to a certain extent, empirical, and destitute of any settled principle. But a careful examination of all the precedent conditions in the histories of such cases exhibited the following facts: That in all the cases in which the iodide had been productive of benefit, the patient at some antecedent period had been salivated, in some for syphilis, in others for an inflammatory or other disease; while in those cases in which no benefit was obtained by the iodide, the patient had either never taken mercury to salivation, or had suffered from syphilis or gonorrhœa, which had either been neglected or treated only locally. It appeared, then, that there were two predisposing causes to the same form of chronic periosteal rheumatism, the impregnation of the system by mercury, and the lurking and subtle influence of the syphilitic virus.

"In my clinical lectures for some years past, I have directed the attention of students to these facts, and impressed on them that the treatment of these cases of chronic periosteal rheumatism should be based on these principles; the first form of the disease requiring the iodide of potassa, the second form the agency of alterative doses of some mild preparation of mercury."—*Lancet*, Nov. 19, 1853.

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27. *Sesquichloride of Iron, etc., in Erysipelas.*—Many instances have lately occurred in the London hospitals, in which the treatment of erysipelas by the much-vaunted tincture of iron has appeared to be very successful, but none of the experiments have been sufficiently crucial in their character to warrant us in considering their results as conclusive. Still, however, the evidence in favour of the remedy is very strong. Some of the patients on whom it has been tried have been young children. With regard to local applications in this disease, it may be stated that the wrapping up the affected part in a large and thick sheet of cotton wool, appears to be very superior in its protecting influence to all others. In several severe cases of erysipelas of the scalp, lately, in St. Thomas's Hospital, Dr. Goolden had the whole affected parts smeared over with a thick coating of white paint. The patients did very well, but the remedy is not an agreeable one to use. It is, we believe, in common employment in some of the pottery districts, where erysipelas of the face and head, from the alternate exposure to cold draughts and to furnace heat, is very frequent.—*Med. Times and Gaz.* Nov. 12, 1853.

28. *Tobacco-smoking in Traumatic Delirium.*—In the *Medical Times and Gazette* for August 13, p. 167, a case is mentioned in which delirium appeared to have been induced by forced abstinence from tobacco, and was relieved by its re-employment. Since then, another very conclusive illustration of the medicinal usefulness of the weed has occurred. The patient was a man in Guy's Hospital, whose skull had been trephined by Mr. Poland, on account of a compound fracture, with depression. The dura mater had not been lacerated, and the parts had been put by the operation in a condition every way favourable to recovery. The man, however, became extremely restless, and, in spite of the use of his accustomed stimulants, ultimately delirious, insisting upon getting out of bed, etc. In his delirium he raved much about his pipe, and this indication for treatment Mr. Poland at once seized, directing, although contrary to the rules of the hospital, that the patient should be allowed to smoke. The beneficial effects were immediately apparent, and the favourable termination of the case appeared to be in no small degree attributable to this simple expedient.—*Med. Times and Gaz.* Nov. 12, 1853.

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29. *Lobelia in Asthma.*—The lobelia inflata, a drug much praised and abused by quacks, and somewhat slighted by the profession, is in constant use among the out-patients in the City Hospital, for diseases of the chest. In doses of ten minims three times in the day, it appears frequently to produce most admirable effects in cases of chronic bronchitis complicated with tendency to paroxysmal asthma. It is commonly given in conjunction with sedatives, expectorants, or stomachics, often agreeing remarkably well with the latter. Patients taking it frequently complain of much nausea and sense of depression during the half hour or so following each dose; but it seems, on the whole, to decidedly improve the appetite and digestion. If the nausea be excessive, combination with a few drops of dilute hydrocyanic acid is often useful.—*Med. Times and Gaz.* Nov. 12, 1853.

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30. *Male-Shield-Fern as a Remedy for Tapeworm.*—Dr. Robert Christison extols (*Monthly Journ. Med. Sci.* July, 1853) the oleo-resinous extract obtained by ether from the root of the male-shield-fern, as a more efficacious and less disagreeable anthelmintic for the expulsion of tænia, than either the kousso, the pomegranate, or the turpentine. Upwards of twenty cases, he says, have been communicated to him in which that remedy had been used, and "in every case without exception the worm was discharged after a single dose, and usually in one mass. In some, it was brought away without any laxative, and occasionally in that case with very little feculent discharge accompanying it. For the most part there was no pain or other uneasiness, either before or during its action. This was the case even in an instance in which the tendency to the disease had existed for no less than seventeen years, and in which the worm evacuated was the largest and strongest I have ever seen. Several patients, who had often previously used other anthelmintics, have noticed this absence of uneasiness during the action of the male-shield-fern, as something different from what they had experienced invariably before. It must be allowed, however, that several other individuals have complained of griping, sickness, or indescribable discomfort in the abdomen, and sometimes even of vomiting. But it admits of question, whether these occurrences depend on any direct action of the remedy on the human body, or upon the disturbed condition of the worm under the poisonous operation of the remedy on it. In fact, we have yet to learn that the male-shield-fern exerts any action on the human stomach or intestines, in the course of its deadly action on the parasitical inhabitants of them."

Dr. C. recommends twenty-four grains for a dose.

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31. *Nicotin Injections in Paralysis of the Bladder.* By Antonio Pavessi.—L. R., between 60 and 70 years of age, of athletic build, but subject to attacks of gout, became affected, after nocturnal exposure to cold, with severe pains in the loins and the extremity of the spinal cord, attended with pain in the region of the bladder and strangury. After the employment of proper remedies, these general symptoms disappeared, but paralysis of the bladder remained, inasmuch

as sixty hours had been allowed to pass after the first occurrence of the strangury, before the introduction of the catheter; from fear, as it was supposed, of exciting inflammation. Many remedies proved of no avail, and the patient was obliged to seek surgical aid twice or thrice a day, or to wear an elastic catheter. On August 2, he came under the care of Dr. Pavessi, who tried the effect of electricity by Daniell's battery, applied to the lumbar region, but without permanent good effect. Then nicotin was employed in the following way: Every morning a silver tube was introduced into the bladder, and, after its evacuation, four or five ounces of a decoction of mallows was injected to clear the organ. After a few minutes the fluid was allowed to flow out, when half an ounce of a solution of nicotin (twelve grains in twelve ounces of water), with one ounce of thin gum water, was injected. In the afternoon the injection was repeated, and in three days the quantity was increased to one ounce. While this was going on, the bladder acquired a daily increased power of contraction, so that at the end of fifteen days the catheter was laid aside. The patient did not experience any effects upon the brain. On September 22, he voided the urine in a full stream, and without straining.—*Med. Times and Gaz.* Oct. 8, 1853, from *Gazz. Lomb.*

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32. *Pityriasis Versicolor curable by Local Applications.*—This common disease, known vulgarly as "liver-spots," and in the nosology of Wilson as chloasma, is one generally acknowledged to be of extreme intractability. Mr. Paget, we notice, among his out-patients at St. Bartholomew's, does not adopt any constitutional treatment whatever, but simply orders a wash of the bichloride of mercury (gr. j, ad ℥j). He informs us that he has never known a case long resist the influence of this remedy regularly applied to the whole affected surface once in the day. At the Skin Hospital, although an arsenical course of internal medication is always prescribed at the same time, yet a mercurial lotion is also used, and may possibly be the chief curative agent. In the hands of Dr. Jenner, at the University College Hospital, the sulphurous acid has, we understand, succeeded very well. There can be little doubt but that the disease is almost invariably curable by local applications solely (parasiticides?). In relation to this mode of cure, it is important to connect the observation of Eichstedt and others, as to the eruption depending on the presence of a cryptogamic plant. Another interesting link in the same chain of evidence has recently been made out at the Skin Hospital, namely, that it is not unfrequently contagious.—*Med. Times and Gaz.* Nov. 12, 1853.

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33. *Local Treatment of Acute Gout.*—The extreme pain attending acute gouty inflammation may, it appears, be very quickly relieved by the application of pure spirits of wine. We witnessed a trial of this remedy by Dr. Goolden on a patient in St. Thomas's Hospital, who was suffering at the time agonizing pain in the foot, and the result was an almost immediate relief. Dr. Goolden informed us that he was in the habit of using it very frequently in private practice, and always with the most pleasing effect. He believed it to act by being absorbed, and not by mere evaporation. The mode of application is by a piece of lint saturated in the spirit, laid over the part, and then covered with oil silk.—*Med. Times and Gaz.* Nov. 12, 1853.

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34. *Local Applications in Chronic Gout and Rheumatism.*—The ancient remedy of soda poultices for chronic gout appears to have fallen into very unmerited disuse. We have seen lately numerous cases in which very great apparent benefit was produced by them. The quantity of soda used was one drachm, mixed with a common bread poultice, and applied hot over the affected joint every night. Many cases affording illustrations of the good effects resulting from iodine painting of joints affected with chronic rheumatism, have recently been under the care of Dr. Bennett, in St. Thomas's Hospital. This remedy, also, although long known, does not appear to be so generally used as it deserves. It was, we believe, a great favourite with the late Dr. Pereira.—*Med. Times and Gaz.* Nov. 12, 1853.

35. *Malformation of the Heart without Cyanosis.*—Dr. Ogle exhibited to the Pathological Society of London (Nov. 15, 1853), a case of congenital malformation of the heart. The pulmonary valves were diseased, and the right ventricle hypertrophied, in order to overcome the obstruction. There was a communication between the ventricles. The aortic valves also were diseased. The patient was a girl who had come under his care with hysterical symptoms, and who afterwards became delirious and died. There was no cyanosis.

Dr. Peacock thought the absence of cyanosis an interesting feature in the case, but that the hypertrophy of the right ventricle would explain it.—*Med. Times and Gaz.* Nov. 26, 1853.

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36. *Malformed Heart with Cyanosis.*—Mr. Hutchinson exhibited to the Pathological Society of London (Nov. 15, 1853) the malformed head of a cyanotic girl, aged eleven years. The bulk of the organ consisted of a much enlarged left ventricle; both auricles were, however, perfect in size and form, and there was in the upper part of the front wall of the left ventricle a small chamber, evidently the undeveloped analogue of the right. This latter cavity was farther divided into two by a muscular septum of some thickness, situated eight lines beneath the attachment of the pulmonary semilunars, and separating the infundibular portion from the sinus of the ventricle. The infundibular part was extremely small. In the centre of this abnormal septum was a minute opening, only admitting of the passage of a small probe, through which the entire pulmonary current of blood must have passed. The pulmonary artery and the aorta were of natural size; the ductus arteriosus closed; the septum of the auricles perfect, that of the ventricles almost wholly deficient. Although not structurally an example of a single or reptile's heart, yet practically it had been so, with the additional inconvenience of an extreme impediment to the passage of blood into the pulmonary artery. From the deficiency of the ventricular septum, both auricles had communicated with the left ventricle, and by the latter the pulmonary as well as the systemic circulation had been carried on. During life, the child had been an example of very severe blue disease, stunted in her growth, never able to take exercise, or to maintain her temperature without the aid of artificial warmth. Mr. Hutchinson stated, that he was indebted to the kindness of his friend Mr. Keyworth, of York, for an opportunity of exhibiting the specimen.

Dr. Peacock remarked on the points of analogy and difference between this case and that brought forward by Dr. Sieveking at the last meeting of the Society; and observed, that all these cases seem to show that obstruction to the circulation, during fœtal life, is the cause of all these malformations.—*Med. Times and Gaz.* Nov. 26, 1853.

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37. *On the Signification of the Milk-crust in Infants.*—Dr. F. Van Willebrand observes, that, both among the profession and the public, the idea prevails that the milk-scab is innocent and curable, and that it is the result of an effort of the system to throw off some acrid scrofulous humour by the skin. He denies the scrofulous nature of the above-mentioned disease, and proceeds to offer some remarks upon scrofulosis generally.

Recent investigations, and especially those of Lebert (*Traité des Malad. Scrof.*), have shown that in scrofula there is no peculiar matter or deposit, nor any special disease of the organs; and that, therefore, we are not justified in regarding scrofula as a specific disease. The glandular swellings upon the surface of the body, which have for so long been regarded as characteristic of scrofula, are, as proved by Andral, Velpeau, and Rokitansky, only a secondary affection, which arises from irritation in parts from which the absorbent vessels proceed, but which may continue long after the cessation of the local irritation. As a cause of glandular swellings in the neck, the author mentions irritation of the mucous membrane of the mouth by dentition; in older children, by carious teeth; irritation of the Schneiderian membrane; chronic conjunctivitis, inflammation of the mucous membrane of the ear, inflammation of the brain (according to Griesinger), and especially cutaneous eruptions of the head and face. The peculiar ramifications of the lymphatic vessels in the places here enumerated

explain the frequent occurrence of glandular swellings of the neck in consequence of affections of the skin, in which the different degrees of irritability of the lymphatic system exercise a most important influence. As instances of glandular swellings occurring at a distance from the local irritation, the author mentions swellings in the axilla, consequent upon vaccination, and remarks, that he has seen glandular swellings, terminating in suppuration, in the neck from the same cause. As, however, a morbid irritation once excited in the lymphatic system may spread after the cessation of the local cause, so may glandular swellings continue or increase after the cicatrization of the vaccine puncture; a fact which the author affirms he has often witnessed. He considers these swellings in no way connected with the protective influence of vaccination; on the contrary, he pronounces them the results of a morbid process complicating vaccination, and he deems it best for the health of the child to make as few punctures in the arm as possible, because many of them tend to excite glandular swellings. Although these enlargements of the cervical glands depend, in by far the greater number of instances, upon no corruption of the blood, but are secondary, and excited by different external causes, yet it cannot be denied that morbid conditions of the lymphatic system, let them proceed from whatever cause they may, exert a prejudicial influence upon the composition of the circulating fluid. All investigations, however, upon the deviations from the normal constitution of the blood in scrofula are valueless, because our conceptions of the disease are too fluctuating and arbitrary.

From the preceding, the author concludes that the milk-scab is not to be regarded as dependent upon scrofula; he rather supports a totally converse view to that, which attributes a purifying effect upon the blood to these cutaneous eruptions. He thinks that most eruptions of a chronic character proceed from external causes, and he especially mentions eczema and impetigo. As external causes, he enumerates deficient attention to the skin, both dirtiness and excess of cleanliness, especially constant bathing in hard water, by which the integument loses its oil, so necessary for its lubrication and protection; rubbing and irritation of the skin by rough coarse hands. The custom, in Finland, of washing and dressing children before a stove is to make up for the want of the sun's warmth. The author has often noticed the first appearance of an eruption after exposure of the child to a sharp raw air. As internal causes, he speaks only of dentition and disturbances of the digestive organs. The spread of eruptions he explains by the ramifications of the lymphatic vessels under the skin. The effect of prolonged irritation is to cause congestion and inflammation of particular spots of integument, upon which vesicles, and pustules, and other simple forms of skin disease may appear. For an example, he brings forward the itch; the occurrence of eczema, after the application of blisters. No hypothetical acrid state of the blood is allowed by him under any conditions. All Dermo-pathologists agree that this eruption—viz. the milk-scab—so long as it is of limited extent, may be cured without harm, and, indeed, must be cured. But, when the disease has existed for a long time, its sudden cure may seriously disturb the organism. The author mentions, as instances of what may ensue, inflammatory affections of the mucous membranes, especially those of the eye and ear; catarrh of the air-passages or of the alimentary canal, difficult of cure. He thinks that chronic cutaneous affections of the head confirm the disposition to congestion of the brain and its consequences in young children; but he does not consider it yet proved that the external inflammation is directly propagated to the dura mater by the freely anastomosing vessels of the cranium, which pass from the pericranium to the parts within the skull. Finally, such widely-diffused eruptions bring on disturbances in the digestive organs—a statement which is confirmed by the observation that the vasa chylifera are inactive in proportion as the external integument is coated with a varnish, or any other application excluding the air. The practical rule in these diseases, to attend to the functions of the digestive organs, appears well grounded. The blood may become more serous in consequence of such digestive disturbances, and hence comes the tendency to watery effusions, œdema, etc. They may take place upon the brain or the lungs, and with imminent peril to life; most commonly in the latter organ, and in the advanced stages of cutaneous disease.

Œdema of the lungs often alternates with hydrocephalus in children. The author does not consider it proved that the speedy cure of an eruption is attended by risk of such watery effusions. At all events, no such case is recorded by Hebra, although he used every means to produce the rapid clearance of the skin. But the author attributes Hebra's success to the custom of putting the patients into warm baths, or employing wet dressings, as is now the custom in some hydropathic establishments. He never employed salves or unctuous applications, believing that their constituent parts could become absorbed and act injuriously.—*Med. Times and Gaz.* Nov. 12, 1853, from *Finstra Läkare Sällskapets Handl.* Bd. 4.

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38. *Discharge of Hydatids in the Urine.*—John Simon, Esq., Surgeon to St. Thomas's Hospital, relates (*Lancet*, Sept. 24, 1853), the following case in which echinococci were discharged in the urine.

"W. S——, aged forty-four, an out-door labourer in Folkestone harbour, began about two years ago to suffer symptoms of his present disease.

"Previously, he had considered himself quite healthy, having had no severe illness within his recollection. For the last four or five years, however, he seems to have had the habit of passing gritty urine (probably with crystals of lithic acid), and has had occasional stiffness in a knee and shoulder. Never to his knowledge has he discharged any worms from the intestinal canal, or had any signs of their presence there. His occupation has exposed him to various kinds of weather, but his habits appear to have been moderate and careful.

"Two years ago he began, and has ever since continued, to experience occasional severe pain, shooting sharply across from one hypochondrium to the other. This 'pain in the ribs,' as he called it, would often be excited by strong exercise—would be much felt, for instance, while he was working a heavy hammer, and it would recur in paroxysms several times during a day. Though the stabs of pain cut across from one side of his body to the other, affecting both of them, the left hypochondrium seems to have been regarded as their starting-place.

"Thus matters had gone on for about six months, when he was suddenly seized with acute sufferings, such as might have belonged to the passage of a calculus from the right kidney. There was the well-known sharp pain running through the right iliac region to the groin, testicle, and thigh, accompanied by spasms of the cremaster and extreme irritability of the bladder. At the end of six hours this attack terminated in his passing, with some effort and probably for the first time (what may now be assumed to have been) a single hydatid vesicle, associated with some of his ordinary gravel.

"Nine months afterwards he underwent a similar attack, the paroxysm lasting for two hours, and resulting, as before, in the discharge of a single (presumed) hydatid, with gravel, and perhaps (as the urine was discoloured) some blood. The symptoms were again referable to the right kidney.

"In both of these attacks he was out of medical observation; they can therefore be fully interpreted only by what occurred on a third occasion, when I was able to verify the nature of the discharge.

"This attack began on July 21st, when he was again seized with extreme pain in the course of the right ureter, extending to the groin, testicle, and thigh, with frequent micturition and with contraction of the cremaster. For forty-eight hours these symptoms continued with the utmost severity; they then somewhat subsided, and in their milder form, with occasional exacerbations, continued for another week, at the end of which time a considerable discharge of hydatid vesicles took place—probably as many as could be piled in a table-spoon, and varying from the size of a filbert downwards. In examining these, I found swarms of perfect echinococci in different stages of growth, together with innumerable hooklets of similar parasites dead and decomposed at some earlier period.

"During the ten days for which this paroxysm lasted, the bladder continued exceedingly irritable, and there was likewise (especially during the earlier days) some general disturbance and feverishness; but the belly was not tender

on pressure, nor was there any vomiting. No inflammatory products were admixed with the urine.

"Four days after the large evacuation, a single hydatid vesicle escaped, with very little distress to the patient.

"From that time to the present he has been well. The stabbing pain across the hypochondria (which had never left him for two years) has been very considerably lightened; he speaks of it as 'not more than a tithe' of what it has been at any time since his first suffering.

"Specimens of his urine, which I have examined during the last ten days, contain no trace of animalcules, nor any other morbid appearance than some crystals of oxalate of lime. With careful exploration of the abdomen, I have been unable to detect, either about the right kidney or elsewhere, any morbid induration or tumour."

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

39. *Treatment of Aneurism by Compression.*—In some of the recent numbers of the *Medical Times and Gaz.* (Nos. for 29th Oct., 5th and 12th of Nov. 1853), there are reported twenty-five cases of aneurism recently treated by compression. This method has evidently won favour with the London surgeons, as is proved by the fact that, in all these cases, with but one exception—and in that there were very conclusive reasons against its employment—it was resorted to in the first instance. The result was highly satisfactory in most of the cases. We shall present the details of some of these cases.

40. *Large Popliteal Aneurism cured by Compression, employed, with much Interruption, for Five Months.*—Jane B., aged 31, was admitted into St. George's Hospital, under the care of Mr. Prescott Hewett, Jan. 17, 1852, with a large aneurism completely filling the right ham. Pulsation and expansion were very evident throughout the sac, which was very soft, and could be easily emptied. The whole tumour was very painful when handled, and at times there were severe shooting pains down the limb.

The patient, a servant of all work, with an anxious countenance, and of a spare frame, but very active habits, had first noticed the swelling about a fortnight previous to her admission into the hospital; it was then small, but her attention had been drawn to the spot by the great pain she felt there. No cause could be assigned for the appearance of the disease; but pain, more or less severe, had existed in the calf of the leg for several months. No disease was detected either in the heart or in the large vessels.

Ordinary diet.

A few days after the admission of the patient into the hospital, two instruments were applied—one in the groin, and the other in the lower part of the thigh. They were alternately made use of; but the pressure was never sufficient to stop the circulation in the sac.

The instruments could only be borne for a short time; but even in two days the sac could no longer be completely emptied. It became necessary, however, to suspend all compression, as the patient was very fidgety and hysterical. Menstruation shortly afterwards made its appearance.

The instruments were reapplied on the 8th of February; but it was found, after a few days, that, notwithstanding all possible care, the skin, which was exceedingly irritable, had begun to vesicate in one or two places. These vesications were followed by slight ulcerations; and, as the patient was still very nervous, it was thought advisable to lay aside the instruments for a few days. At this time, there was much less pain about the aneurism itself, which appeared to be somewhat contracted; but there was a very painful and burning sensation over the knee-cap.

The skin having recovered itself, compression was again resorted to. Slight pressure only was made, and the patient gradually became accustomed to the use of the instruments; but they were obliged to be left off again at the time of menstruation, owing to the irritable condition of the patient, and at her own urgent request. Thus matters went on for some little time, the sac contracting but very slowly, and the deposition of fibrin being but very gradual; there was, however, little or no pain in the tumour, and the patient appeared to be improving in general health.

A weight applied in the groin was subsequently substituted for the pelvic instrument, as the patient preferred it; and she was put upon low diet, the pulse being rather full, and the countenance florid. This plan was fully carried out for some time; but it did not appear to have much effect on the tumour. The sac, although somewhat contracted, was still large and easily compressed, and pulsation still remained evident throughout its whole extent. Notwithstanding these apparently slight results, it was determined that compression of the artery should be persevered in; the patient herself being most anxious that no operation should be resorted to. Pressure was therefore kept up alternately, by means of the weight in the groin, and by a ring tourniquet in the lower part of the femoral; but it was always found that it was necessary to lay aside all mechanical treatment at each menstrual period.

Towards the end of May, some enlarged articular branches were observed running over the inner condyle; the sac was evidently less in size; it was much more solid, and all pulsation could be easily controlled by pressure on the ham. Direct pressure was therefore made upon the tumour, and a bandage applied to the lower part of the limb; but this was left off after a few days, as it became painful, and as little or no benefit appeared to be derived from it.

At the latter end of June, a new nurse having been appointed to the ward, the case was very closely watched, and the instruments were kept constantly applied. The patient again complained of intense pain in the cap of the knee, and of a burning sensation down the leg. This went on for two or three days, and, on the 1st of July, all pulsation suddenly ceased in the tumour, which, when examined, was found to be perfectly solid, and of the size of a large egg. Slight pressure was kept up for a day or two, after which all mechanical treatment was abandoned. In a few days, she was allowed to get up, and, after some little time, as the tumour was rapidly diminishing in size, the patient was sent into the country.

The long period which the treatment occupied in this case may, in some measure, be explained by the natural irritability of the patient, and by the light manner in which she viewed the disease. Once relieved from the great pain she had been suffering, she not unfrequently relaxed the pressure, and, at one time, it was found out that, during the temporary absence of the nurse, she removed the instruments and walked about the ward. It was then represented to her, that, unless cured by compression, she would certainly have to undergo an operation; this had the desired effect, and the plan of treatment was subsequently fairly carried out.

After her return from the country, this patient applied for the situation of nurse in the hospital, and, at the present time, she is doing the duty of night-nurse. She is in excellent health, and is able to go through all her work remarkably well, and, excepting some slight thickening in the popliteal space, all traces of the aneurism have disappeared.—*Med. Times and Gaz.* Oct. 29, 1853.

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41. *Aneurism of the Popliteal Artery—Treatment by Compression—Cure on the Eleventh Day.*—William Gilbert, aged 57, a carpenter, spare and tall (nearly six feet two), was admitted into Guy's Hospital, under the care of Mr. Cock, Nov. 15, on account of an aneurism in the right popliteal space. He had first noticed it two months previously, when it was about the size of a walnut, but as it gave him little or no inconvenience, he had not sought medical advice until quite lately, and it had now attained the size of an egg. Its pulsations were strong, and equal in all directions, and gave to the finger the impression that they were conveyed through coats of moderate thickness.

He stated that he had always enjoyed good health, with the exception of occasional slight attacks of lumbago; that he lived temperately, and had been accustomed to considerable exertion. For some years he had been subject to a sense of pain behind the sternum, on taking active exercise, attended also with slight dyspnœa, the liability to which had decidedly increased. On attempting to feel his pulse, it was discovered that at the right wrist the artery could be readily found as a soft cord, of considerable size, but that it yielded either no, or the very feeblest, pulsations. The same was the state of the right common carotid and its branches, none of which pulsated in the least. The left common carotid was very large, and beat with a powerful pulsation, while the left radial artery afforded an example of a full, soft, and rather feeble pulse. In no situation could any signs of ossification be detected in the arteries. The impulse of the heart was normal, and its sounds, though rather sharp, were heard distinctly, and free from bruit in all parts, excepting in the middle of the sternum, a little above its base, where a very faint murmur, synchronous with its first sound, became audible. This murmur increased in intensity on passing towards the left clavicle, and beneath its scapular third was extremely loud; it was also feebly heard beneath the right clavicle. On being questioned, the patient stated, that for some years his right arm had been getting weaker than the other, and that he had been much troubled with loud ringing sounds in the right ear. There was not any very perceptible difference in the muscularity of the two arms.

As the patient appeared to be a quiet and sensible man, on whose assistance in the management of his own case some reliance could be placed, Mr. Cock decided to attempt the cure by means of compression. The man was accordingly directed to keep in bed, and to have a nutritious, but moderate meat diet, with as small an allowance of fluid as possible.

On November 24, the screw compress was applied to the femoral artery in the upper third of its course, the pad being screwed down so tightly as nearly, but not quite, to suspend the flow of blood through the tumour. The patient was furnished with a heavy cylinder, such as is ordinarily used for that purpose, and directed to unscrew the apparatus when its pressure became too painful, and to place the weight over the artery where it crosses the brim of the pelvis, thus changing the part at which the compression was applied.

During the first week, the inconvenience produced by the pressure was so great that he was obliged to alternate between the screw-pad and the weight every twenty minutes. His sleep was consequently obtained only by very short instalments, and although his general health in other respects continued good, yet the want of rest induced considerable restlessness and disturbance of the nervous system. The skin having become excoriated at the place where the pad had been at first placed, Mr. Cock altered its position to the middle of the thigh, and ordered the application of zinc ointment to the abrasion.

On December 10, as during the past week the force of pulsation in the tumour, when the pressure was taken off, had been very slight, and for five days quite wanting, Mr. Cock ordered the apparatus to be discontinued. The tumour was now much diminished in size and felt quite solid; it was not tender, and never occasioned pain. Running over its centre was the trunk of a small artery, the pulsations of which were very distinct. The man appeared to be in good health; he had borne the pressure with much less inconvenience during the latter part of the treatment than at first, and only twice during the whole time had it been necessary to exhibit opiates. His diet had been meat to dinner, and bread and butter morning and evening, with four small cups of coffee per day as the only diluent.

20th. Ten days having now elapsed since the suspension of pressure, the tumour still continuing quite free from pulsation, Mr. Cock allowed him to get up, the parts being supported and confined by a bandage. The artery before noticed as running over the original tumour is increasing in size; there are one or two others at the sides of the swelling, probably enlarged anastomotic branches.

26th. The cure appearing to be complete, he is discharged. The tumour has diminished to the size of a small walnut, and is quite hard.

The physical phenomena of his chest continue precisely as before. Dr. Hughes,

who at Mr. Cock's desire has examined the case, expresses his opinion that there is aortic disease, but as it does not give rise to any distressing symptoms, there appears little object for attempting anything in the way of treatment.

Oct. 11, 1853.—Mr. Cock informs us that he has recently heard a very good account of this patient's condition. He is now regularly at work, has had no indications of return of the popliteal disease, and does not suffer materially from that within the chest.

We append to this case the following brief but very sententious clinical observations which it elicited from Mr. Cock:—

"The want of success which I have seen attending the application of pressure in several previous instances, may, I think, fairly be ascribed to certain causes and circumstances, the regulation of which is in great measure under the control of the surgeon and his patient. Both parties must combine to carry out certain principles and practices, without the observance of which a favourable issue can hardly be expected. The patient should be both willing and intelligent; he should thoroughly understand the mode and *rationale* of the practice about to be adopted, so as to be able to adjust and regulate the apparatus in the unavoidable absence of his medical adviser. His wishes and feelings should be engaged in the success of a scheme, the beneficent intention of which is to save him from the more dangerous, although less tedious operation by the knife.

"It not unfrequently happens that a man comes into a hospital for the special purpose of having his artery tied, as he has been told that this is the only means of cure. A prize-fighter was some years ago under my care with popliteal aneurism. I in vain tried to persuade him to submit to compression; the apparatus was thrown aside as soon as it became irksome. He had no fear of the knife, and at his urgent request I tied the artery, with a favourable result.

"One of my colleagues had a man under his care who repudiated compression, and declared he would neither eat nor drink until the vessel was ligatured. He kept his resolution long enough to induce compliance with his demand.

"An important item in the treatment is the regulation of the patient's diet. A moderate, perhaps sparing, quantity of nutritious solid food, of whatever character may best suit his taste and habits, with the smallest possible allowance of unstimulating fluid, seems to me best adapted for the purpose. I place much stress on the abstinence from drink, as I believe it will be allowed, that a quantity of even the blandest fluid received into the stomach, seldom fails to add to the volume of the blood, while it accelerates the action and increases the impulsive force of the heart.

"Much depends on the first adaptation of the instrument; and I think it would in most cases be judicious to use little or no positive pressure for a day or two, or until the patient has become reconciled to the inconvenience and constraint which the apparatus produces. Pressure should be applied with much gentleness, and increased most gradually. Moreover, as a principle, which I am aware cannot always be carried out, I would say, that the screw should never be turned so tightly as to require subsequent relaxation or removal, except for the purpose of obtaining ease by transferring the pressure to another locality. I have reason to believe that much of the pain, and that of the most unbearable character, is produced by undue pressure on the vein, causing impediment to the return of blood, and consequent congestion. This involves a difficulty not easily overcome, as the same instrument whose pressure diminishes the caliber of the artery must necessarily exert more or less influence on the contiguous vein; but the injurious effects may, in great measure, be obviated, first, by moderating the force applied until time has been given for the collateral venous channels to come into play; and, secondly, by raising the limb and placing it in such a posture as may best accord with the feelings of the patient. Much depends on the perfection of the instrument, and its capability of being easily regulated and controlled by the patient, without shifting the position of the pad over the artery. Much also may be expected from keeping the patient in a tranquil and hopeful state.

"Lastly. All unnecessary interference with the patient or the apparatus; all handling or squeezing of the sac, by those whose curiosity exceeding their dis-

cretion, renders them anxious to ascertain what change may have taken place; all relaxing of pressure to see the amount of success, disturbing the progress of events, interfering with the processes of nature, and not unfrequently 'undoing all as all had never been,' should be strictly interdicted. No two cases of aneurism are probably exactly similar; and whatever principles we may propose or lay down for their treatment, they must be modified according to circumstances.—*Med. Times and Gaz.* Oct. 29, 1853.

42. *Popliteal Aneurism—Treatment by Compression—Cure on the Thirty-second Day.*—William Duckworth, aged 37, a warehouseman, accustomed to much standing, and running up and down stairs, was admitted into Guy's Hospital, under the care of Mr. Hilton, July 20, 1853, on account of an aneurism the size of a hen's egg in his left popliteal space. The tumour pulsated very forcibly, was definitely circumscribed, and equally soft and smooth in all parts; a bruit was heard over it synchronous with the pulse, and both pulsation and bruit were arrested by making pressure on the femoral artery. The man stated, that he had first felt pain behind the knee six weeks previously, and that he had discovered the presence of the swelling a few days afterwards. He was an intelligent person, quite willing to submit to and to aid in any plan of treatment thought best for him; although rather stout, yet his muscular system was flabby and soft. It did not appear that the tumour had materially increased in size since his first discovery of it, and it had occasioned him very little pain.

Treatment was commenced on the 21st, at eight in the evening, when Mr. Hilton adjusted a clamp and pad over the junction of the superior and middle thirds of the femoral. It was screwed tightly down, and the pulsations of the aneurism quite arrested. The man was ordered to have a full meat diet, without any stimulant, and to restrict himself to as small a quantity of fluid as possible. To take fifteen minims of the tincture of digitalis every four hours.

July 22 (2d day).—The pain produced by the pad was so severe, that after about two hours the apparatus had to be removed. This morning Mr. Hilton again applied it, and furnished the man with a heavy cylinder, directing him to alternate the pressure by the two instruments, but never to be without one of them in use. To continue the same medicine and diet.

23*d* (3d day).—Has slept badly, in part from pain, and in part from mental anxiety. The pressure has produced tingling and numbness down the leg, with slight swelling about the knee.

24*th* (4th day).—The thigh being fat, it has been found necessary to screw the pad very tight in order to keep up sufficient pressure, and the skin has consequently become chafed. The tumour is certainly firmer than it was. The skin is to be protected by dusting it with powdered oxide of zinc, and the apparatus is to be frequently moved from part to part.

27*th* (7th day).—The patient has not exceeded a pint of fluid per diem since the treatment was commenced. His health continues good, and he now gets a fair amount of sleep, though he complains of feeling stiff and tired. The tumour hardens, and is, perhaps, a little less in size than it was. The skin of the thigh is still inflamed and vesicated.

August 4*th* (15th day).—Owing to the fat and flabby condition of the thigh much difficulty has been encountered in keeping up constant pressure of sufficient force, and the cure appears to be delayed on this account.

6*th* (17th day).—The man is this morning somewhat feverish; the bowels have not acted for several days. To take a calomel and opium pill (gr. ij, and gr. ss) and a dose of castor-oil afterwards.

7*th* (18th day).—The medicines have acted, and he is much better. The clamp apparatus is to be removed, in order to have the hinder pad altered. Pressure is to be kept up constantly with the cylinder.

10*th* (21st day).—The skin is so sore, that it has not been thought advisable to reapply the clamp. The cylinder is kept in constant use; but it is probable, that during sleep, it often gets displaced. The tumour is, however, becoming much firmer, and its pulsations, though still strong, are diminished.

13*th* (24th day).—Steady progress. The medicine (digitalis) was omitted

yesterday; it has throughout kept the pulse quiet, though not markedly depressed. The same diet is still to be persevered in.

21*st* (32d day).—Pulsation in the tumour, which has been gradually decreasing day by day, has now quite ceased. The swelling is not now larger than a pigeon's egg, firmly resisting, and free from tenderness. An artery of some caliber may be felt crossing over the sac. The pulse in the posterior tibial cannot be felt. Throughout the treatment, the limb has never perceptibly lost temperature; it is perhaps, a little larger than the other, but no marked œdema exists. Since August 7, the cylinder only has been used as a compressor; it is to be continued for a few days longer.

31*st*.—The entire limb has been bandaged in flannel, and supported to the neck by a long sling, and in this way the patient has been allowed to move about the ward with crutches.

Sept. 6.—The tumour is still farther diminished in size, and continues quite solid. During the last few days the man has been walking about, and occasionally bearing his weight on the affected limb. He is discharged.

Oct. 26.—The man is now quite well and at his usual employment.—*Med. Times and Gaz.* Oct. 29, 1853.

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43. *Popliteal Aneurism—Treatment by interrupted Compression—Cure in Ten Weeks.*—Henry Jarman, aged 32, was admitted into St. George's Hospital, under the care of Mr. Prescott Hewett, on the 1st of August, 1853, with a large popliteal aneurism occupying the lower part of the right ham, and bulging downwards over the gastrocnemius muscle. All the signs of an aneurism were well marked. When compression was made on the femoral, the sac became perfectly soft and flaccid, so much so that it could scarcely be felt; but, when filled, it appeared to be of the size of a large orange, and oval in shape. The tumour was excessively painful when touched; and darting pains every now and then started from the ham down the leg and ankle. Well-marked œdema existed about the limb, from the knee downwards.

This man had applied at the hospital as an out-patient, not knowing what was the matter with him. Five weeks previously, he had, for the first time, felt some stiffness in the right ham, and shortly afterwards he discovered a swelling there, which was "beating." This swelling had gone on increasing; and at times had caused him intense pain, especially at night. He had never met with any accident, but was often obliged to lift very heavy weights. A baker by trade. Although pale, and of a spare habit, with a careworn appearance and a trembling hand, he had not suffered from illness, and had always led a regular life. No disease was detected either about the heart or in the large vessels; but the pulse was very weak. Several large glands and a large irregular cicatrix of some years' standing existed in the right groin.

He was put on ordinary diet, and, as he suffered intense pain in the limb, he was ordered a composing draught every night.

For the first few days after his admission into the hospital, this patient was so nervous that it was thought advisable to delay doing anything until he had become accustomed to the ward and to the compressing instruments.

A weight was for the first time applied to the groin on the 7th of August; but this could be borne for two hours only, owing to the excessive pain which it caused in the sac and in the leg.

On the 8th, the pressure was resumed, and kept up between three and four hours consecutively in the groin; but he was then obliged to give it up again, on account of the great increase of the pain in the ham and in the ankle; there was little or no pain, however, at the point where compression had been made.

On the 9th, the clamp was applied to the thigh at Hunter's canal, and borne for some time; then the weight was applied to the groin; but, in whatever way the pressure was made, it always gave rise to a great increase of the pain, both in the sac and in all parts below it. On examining the tumour, it was found to be firmer already, for the sac could no longer be emptied. There was less pain about the sac when it was handled, and the œdema of the limb was also much less. The man had now become accustomed to the use of the instru-

ments; and, as he was found to be intelligent, and anxious to carry out the plan of treatment, he was left to regulate the pressure himself.

On the 20th, the tumour was decidedly less in size, and much more solid; there was but little pain remaining either in the sac or in the leg, and there was little or no œdema. The patient slept well, felt quite comfortable, and the opiate draught had been left off for two nights. During the preceding ten days, he had managed the apparatus for himself, having a "Carte's compressor"* fitted to the thigh, and alternating its use with that of the cylinder-weight applied in the groin. He much preferred the former, having been able to bear it with less pain, and for longer periods. Altogether, the pressure had been kept up for about six hours daily, at different intervals, and often for two hours or more during the nights when he has been awake; but he had made a practice of always removing the instrument when going to sleep. The pressure had been applied so as to allow only of a feeble circulation through the sac. There was neither excoriation nor redness about the skin, the instrument having been shifted from place to place along the course of the artery.

On the 26th, the sac was firmer, and the pulsation less distinct; two small arteries were detected running over the back part of the sac, in a longitudinal direction. In the previous night, after having had the instrument on for several hours during the day, the patient had been suddenly seized with violent pain in the leg and foot; he was asleep at the time, and had left the instrument off for about three hours. The pain was so great that he was obliged to get up and rub the limb, when, to his surprise, he found that all pulsation had suddenly ceased in the sac; the pain continued for several hours, during which time he could feel no pulsation in the sac; but the latter afterwards gradually made its appearance again, and in the morning it was very evident.

By the middle of September the sac had become so much contracted, that it could scarcely be felt when the limb was flexed; the pulsation, although slight, could still be felt over a small space at the lower and outer part of the ham. The collateral vessels at the back of the sac were larger; there was no pain, and the parts could bear handling without any inconvenience. Compression had been kept up steadily for several hours daily, at different intervals, but the instruments had always been taken off during the night.

Being weak and languid, he was, on the 1st of October, ordered a pint of porter daily; and on the 8th it was observed, that the pulsation still remaining in the sac could be readily controlled by direct pressure in the ham, and that without any pain. Under these circumstances an air-pad was placed in the ham, and the leg and knee were carefully bandaged; the ring-tourniquet was still applied to the femoral. A hard pad was subsequently made use of instead of the air-pad, and the knee was firmly bandaged, so as to check all pulsation in the sac. This plan of treatment was carried on for several days, and on the 18th, when the patient removed the pad for the night, as the tumour was very painful, no pulsation could be detected in the sac, but it reappeared in a short time; it was very feeble, however, and there was great pain down the leg and in the ankle. The tourniquet and the pad in the ham were reapplied on the following morning, and compression kept up for several hours; and in the afternoon of the 19th, all pulsation finally ceased in the sac.

The ring-tourniquet was kept lightly applied on the 20th, but all compression was removed on the 21st. For the last two weeks the patient has been up. The aneurismal sac is now very small, and quite solid. Several large collateral vessels can be detected running over the back of the sac, and over the inner condyle of the femur. The man is in good health.—*Med. Times and Gaz.* November 5, 1853.

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44. *Large Popliteal Aneurism—Treatment by Compression—cured in six Weeks.*—George Hale, an ostler, aged 42 years, was admitted into University College Hospital, under the care of Mr. Erichsen, September 19, 1853, having in the lower part of his left popliteal space a strongly pulsating aneurism, the

[1] A ring-tourniquet with elastic bands. For description, and an engraving, see *Medical Times and Gazette*, Aug. 9, 1851, p. 155.

size of a large fist. He had for about three months noticed a weakness about his left knee and ankle, but of the existence of the tumour he had only been aware for about three or four weeks, during which time it had rapidly increased in size, and been very painful. He was a moderately stout man, of temperate habits, and in good health. The pulsations of the tumour were very forcible, perceptible to the eye, and attended by a bruit; they ceased entirely, and the sac collapsed when firm pressure was made upon the femoral. The whole left leg was considerably larger than its fellow, but there was not sufficient œdema to cause pitting on pressure. The subcutaneous veins were much enlarged, and very tortuous. The most prominent part of the aneurism was about an inch and a half below the middle of the joint, and at this point the limb had a circumference of 16 inches.

The compression treatment was commenced on the 20th, by means of two of Signorini's tourniquets, applied so as to press, the one over the brim of the pelvis, the other in the middle third of the thigh, and alternately employed. During the first two days, the patient complained of much pain, and was not able to bear pressure sufficient to arrest the beating of the tumour; and the instruments had to be laid aside each night.

On the 23d, more efficient treatment was adopted, as he now became able to bear, without much inconvenience, the requisite amount of pressure; and from this time forwards it was found practicable to keep up, with a few accidental intermissions, constant pressure, night and day, sufficient to entirely arrest the circulation through the sac. The intermissions alluded to were occasioned by the apparatus sometimes getting displaced, more especially during sleep. The man, however, had great tact in readjusting it for himself; and the greatest credit is due to Mr. Turle, Mr. Erichsen's house-surgeon, for the assiduous attention which he devoted to the case, making it his duty to ascertain, at frequent intervals, both night and day, that the instruments were acting efficiently. The patient was put on a full meat diet, with an allowance of two pints of beef-tea daily.

On October 3 (the 13th day), Mr. Erichsen ordered that the diet should be closely restricted to the following allowance: Breakfast, four ounces of bread and a pint of milk; dinner, four ounces of bread, a chop, and a small quantity of water; tea, two ounces of bread and a pint of milk. At this time the tumour was decidedly harder, and less in size than at first.

On the 10th, the horse-shoe tourniquets, which had acted very well, were substituted by two of Dr. Carte's instruments, the application of which had been delayed, owing to some alterations necessary in order to fit one of them to the pelvis. The tumour was examined, when all pressure was removed, and it was found to have decidedly diminished in expansile force, to have become much firmer, and to be about two-thirds of its original size. The circumference of the limb was fourteen inches and a half.

On the 15th, but little progress had been made since last note; the patient had not been able to manage the more complex apparatus so well as he did the tourniquets, and on several occasions Mr. Turle had found the tumour beating forcibly. The skin had also become somewhat chafed from pressure. Although the prescribed diet had been strictly kept to, the patient's pulse continued strong and full. Mr. Erichsen ordered the limb to be enveloped in an elastic bandage, the tumour being protected by a pad of tow. Venesection to eight ounces.

During the night of the 17th there was so much pain caused that the man took off the apparatus entirely. He was, however, visited within an hour after by Mr. Turle, and the instrument again applied. On the following day, venesection to four ounces was again practised.

On the 22d, the man was again bled to four ounces; a draught containing five minims of the tincture of digitalis was ordered to be taken three times daily, and a scruple of compound jalap powder every other night. On this day there was noticed a yet farther lessening of the expansile force of the tumour.

On the 26th, the bleeding to four ounces was again repeated. The immediate effect of this measure had, on each occasion, been to render the pulse rather quicker, more compressible, and a little jerking. The man had sometimes complained of feeling weak. The medicines regularly continued.

On the 29th, there was found, at the time of visit, slight beating in the tumour, but it ceased immediately on screwing down the pad a little tighter. Pulse 80, soft and full.

In the night of the 31st, owing apparently to the patient having turned in his sleep, and the pad having consequently slipped, the tumour was found pulsating sharply. The apparatus was at once readjusted.

Nov. 3 (45th day). The treatment, as last indicated, has been regularly persevered with. Last night the man states that he awoke with a peculiar sensation all over him, and, feeling alarmed, he unscrewed the tourniquet, and discovered that the tumour, which in the preceding evening had pulsated with usual force, had now quite ceased to beat. He readjusted the instrument, and soon after again fell asleep. To-day the tumour feels hard, and does not pulsate in the least when compression is removed. A vessel of some size may be felt crossing the sac. The dose of digitalis was yesterday increased to ten minims, and it is ordered to be continued. The patient does not feel any pain whatever in the limb.

On November 7, the instruments were finally laid aside, and the man allowed to leave his bed; he could walk about the ward, though with some sense of stiffness in the affected ham.

At the present time, November 11, the man is up regularly every day, and the tumour, which remains quite solid and hard, is gradually diminishing in size. Enlarged collateral vessels may be felt on both sides the joint, and also over the surface of the sac itself; there is feeble pulsation perceptible in the posterior tibial, but none at all in the anterior tibial or the dorsal artery of the foot.

We have extracted the above details from the notes taken by the dresser, Mr. White. The result of the case is probably in a very considerable measure due to the careful constitutional treatment which Mr. Erichsen enforced, and is, considering the very large size of the tumour, extremely satisfactory. Under the depletive measures pursued the man lost strength and colour considerably, but he is now fast regaining both. It must be noted, that the inconvenience caused was never so great as to require the administration of opium, and the man slept fairly almost every night. The swelling of the leg, so far from being increased, gradually diminished from the day of his admission. The compression was borne almost equally well in the groin and in the middle of the thigh, and at night the precaution was usually adopted of screwing down both pads.—*Med. Times and Gaz.* Nov. 12, 1853.

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45. *Aneurism of both Popliteal Arteries—Cure of both by Compression in periods respectively of four and eight days.*—John Donovan, aged 29, a bootmaker, applied to Mr. Stanley, at St. Bartholomew's Hospital, on account of a beating tumour in his right ham, where, on examination, a soft, but forcibly pulsating aneurism, the size of a pigeon's egg, was discovered. He had only noticed the swelling for about a week, during which he had experienced some pain in the part, and the leg had become slightly swollen. On examining the opposite leg, another aneurism of nearly the same size as the first was found; of this the man had known nothing. It was situated quite in the lowest part of the popliteal space, lower down than that in the right limb. It appeared, on inquiry, that the man had for about a year been in the habit of sitting at work on a high wooden chair, with his knees pressed firmly back against the front edge of the seat, and with the left foot a little higher than the other. Agreeing so well as it did with the relative position of the tumours, Mr. Stanley stated that he had no hesitation in accepting this as the true explanation. By the continued irritation of pressure on the vessels, disease of coats had been set up until they became unable to resist the impulse of the current of blood within them. It was ascertained that the chair used was of unusual height, and quite different from those commonly employed by shoemakers.

The treatment was first adopted for the left. After trying in vain to adapt the Signorini tourniquets to the limb, so as to efficiently command the vessel, Mr. Stanley had an iron clamp made, with a broad splint fitted to one end, and a screw-pad to the other. This succeeded well, and for four successive days

(the place, of course, being varied) efficient compression was unremittingly kept up, and at the end the tumour was found to be quite solid. The instruments were retained in use for a day or two longer, and then laid aside. During the first day of pressure the limb lost temperature, and had to be wrapped in flannels. On the following day, however, some enlarged collateral vessels were found crossing the joint, and the two legs had an equal temperature.

An interval of ten days having been suffered to elapse, and the cure of the left appearing permanent, the treatment of the right tumour, which had in the mean time not altered in size or other condition, was commenced. The same clamp was used, but, as the man complained of much pain, it was not applied continuously. It was tried, with short intermissions, for four distinct periods of respectively 39, 24, 24, and 48 hours' duration, after the last of which the contents of the sac had become solid, and no pulsation returned. As in the former case, the instruments were continued in application for a few days longer, and very shortly afterwards the man left the hospital. Mr. Stanley informs us that he saw him some time subsequently, and that he continued quite well.

It appeared in this case that the collateral circulation was established with unusual ease and rapidity, for in both limbs, at the time compression was abandoned, pulsations could be felt in the tibial vessels. That this was really due to the establishment of collateral channels, and not to continued perviousness of the popliteal trunk, Mr. Stanley concluded from the circumstances, that the popliteal could not be felt to beat; that there were in each limb supplemental arteries of considerable size to be found crossing the joint; and that, from the kind of aneurism usually occurring in the ham, it was difficult to conceive of its cure without obliteration also of the popliteal artery.—*Med. Times and Gaz.* Nov. 12, 1853.

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46. *Popliteal Aneurism treated by Compression—Cure on the Eighth Day.*—George Edwards, aged 24, an hostler, was admitted into St. Bartholomew's Hospital, under the care of Mr. Lloyd, May 4, suffering from periostitis of the tibia. He had been in the hospital under treatment for this disease nearly three weeks, when an aneurism was discovered in his left popliteal space, of which no history could be obtained. It was the size of a pullet's egg, pulsated forcibly, and presented all the usual symptoms of the disease. A preparatory treatment, which consisted in putting the patient on a sparing diet (without meat), and exhibiting a saline aperient mixture, containing the tincture of digitalis (℥ xv), three times daily was adopted; and, on May 24, compression of the femoral trunk was commenced. The apparatus used was the ordinary clamp, which was applied at different parts of the thigh, and never with sufficient tightness to quite arrest the flow of blood through the tumour. Slow progress in solidification was made up to June 1 (the seventh day), on the morning of which day the compressing pad was readjusted, and screwed down with more tightness than before; still, however, not with so much as to entirely stop the pulsation of the tumour. The man, who had now become anxious for a speedy cure, had determined, as it afterwards appeared, to bear the pain, and he allowed the pad to continue in the same place as it had been put for twelve consecutive hours. On the following morning, the tumour felt solid, and pulsation had entirely ceased, but there was a large dusky bulla over the part where the pad had pressed. Subsequently, a deep slough, of about the circumference of half a crown, formed, and was separated from the surrounding tissues. No farther ill consequences attended the event; the sore shortly filled up and healed; the aneurism was permanently cured. The man left the hospital on July 10, quite well, the popliteal tumour having been reduced to very small dimensions. —*Ibid.*

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47. *Popliteal Aneurism treated by Compression—Cure in Sixty Hours.*—William Presgrove, aged 36, a healthy and very muscular farm labourer, was admitted into the Nottingham General Hospital, under the care of Mr. Thomas Wright, August 4, 1853. In his right popliteal space was a strongly beating tumour, the pulsation of which could be felt for an extent of two inches in length

and one and a half in breadth, and over which a short bellows murmur was audible. Its margins could not be very distinctly felt. By pressure over the vessel at the pubes all pulsation could be arrested. There was no numbness in the affected leg, but it was œdematous to a considerable extent. The man stated that, with the exception of a single attack of rheumatic fever, he had always enjoyed excellent health. About eleven months ago, while hauling a large boat out of a lake, he had felt something suddenly give way in his ham, and afterwards considerable pain in the part ensued. He, however, continued at work during the following five weeks, after which he placed himself under medical care in the country.

August 12.—Compression of the femoral commenced; two clamps being applied, the one over the pelvis, the other in the upper third of thigh, and alternately tightened. The leg up to the knee has been carefully bandaged. The patient is on low diet, without restriction as to the amount of fluid.

13*th.*—Owing to the stupidity of the patient, who cannot be made to understand the management of the clamps, the pressure has been much interrupted during the night. The pulsation in the tumour is not diminished. No pain is complained of; there are no feverish symptoms, and the temperature of the two limbs is equal. Pulse 88. The thigh being very fat, it is necessary to screw the clamps very tight, in order to arrest the flow of blood.

15*th.*—Last night, a little before twelve, the patient discovered, while adjusting the apparatus, that the tumour had become quite solid and pulseless. This morning there is not the slightest impulse to be felt on firm pressure, and the mass is circumscribed and hard. He "feels as well as ever he did in his life;" has passed two very tolerable nights during the compression; has not required a single opiate, and has complained of but little inconvenience. He is directed to remain in bed, and, as a precautionary measure, to keep up gentle pressure for a day or two longer.

September 13.—Discharged from the hospital in every respect quite well, the aneurismal tumour being small and hard. He has been kept under care for the last ten days solely on account of an attack of urticaria febrilis, which has yielded to the ordinary treatment.—*Ibid.*

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48. *On Suppuration of the Joints from Infection of the Blood.*—Mr. Coulson read an interesting paper before the Medical Society of London (October 15, 1853), in which he discussed the symptoms, nature, and treatment of a peculiar affection of the joints which comes on after amputation, puerperal fever, operations on the genito-urinary organs, &c. This disease consists of suppuration within the joints, probably of an inflammatory nature, and generally ending in death. Not long ago, it was divided into nearly as many diseases as it had exciting causes; but the author justly remarks that, whether of puerperal, traumatic, or other origin, the disease is one and the same; or, to speak more correctly, it makes part of one and the same constitutional affection. After having related some cases which illustrate the manner in which the disease may follow the introduction of a bougie for stricture, lithotrity, parturition, and glanders, the author proceeds to describe it, and commences with one of the most interesting and important forms, namely, that accompanying parturition. Mr. Coulson first, however, observes that the origin, the course, the symptoms, and the morbid anatomy of articular disease produced by purulent infection of the blood, are of a peculiar kind, different in many essential particulars from what are observed in any other form of disease of the joints. If the disease is regarded as a mere local affection, it is impossible to understand the general symptoms which accompany it, its cause, or its rapidly fatal result; for these are quite different from what is observed in the most violent cases of articular inflammation developed under ordinary circumstances. Everything, on the contrary, in the history of the disease, points to a special origin; its main features are always the same; and although many cases may be attended by symptoms which would seem to indicate a variety of origins, and justify a distinction into several forms, yet these symptoms will be found to depend on accidental circumstances, and not to vary more in individual cases than are found occurring in examples of other diseases, which depend, as this one does,

on contamination of the blood. The pathology of the disease is briefly but clearly given. The joints, which are affected during life, almost always contain more or less pus, and it bears no relation to the intensity of the local complaint, or to its duration. In many cases, purulent effusion takes place within a few hours after the first appearance of the local symptoms, and in many other cases with so little pain or tumefaction of the joint as hardly to attract attention during life. The synovial membrane, however, generally presents traces of recent inflammation, though not of a severe degree; it is more or less injected, yet the false membranes of ordinary synovial inflammation are never found, one of the characters being the production of pus in a rapid manner, with little or no inflammatory congestion of the tissues. In some cases the synovial membrane has been found quite free from all trace of vascularity or other lesion. This has been regarded as a proof of the non-inflammatory nature of the disease; but it seems to the author more rational to conclude that the injection of the vessels had disappeared after the secretion of pus, and it is known that purulent inflammation under certain circumstances is of a very evanescent character. In one case, the synovial membrane round the head of the thigh-bone was evidently injected before any effusion of pus had taken place, and it is easy to understand that this injection might have disappeared in a day or two, if the extremities of the capillary vessels had become modified by the changes which ensue on suppuration. The cartilages, ligaments, and other tissues composing the joint, are usually in a healthy state, for the disease is essentially a purulent inflammation of the synovial membrane. In many cases, the cartilaginous coverings of the bones are found to have been more or less eroded or absorbed, and in a very few examples the ulceration has involved the substance of the bone itself. The patient, however, is generally cut off before the disease proceeds so far. The periarticular tissues are often the seat of seropurulent infiltration, or of circumscribed abscesses; these are also found in the muscles of the limb, and sometimes with very extensive disorganization of the parts. Having thus pointed out the general morbid anatomy of the disease, Mr. Coulson proceeds to show that when it occurs in puerperal females it has generally been confounded by accoucheurs with puerperal fever or described as a distinct complaint. This is an error. Puerperal women are often attacked by purulent inflammation of the joints without any of the symptoms which really indicate puerperal fever; but the constitutional symptoms of the purulent infection on which the articular disease depends have been mistaken for those of anomalous puerperal fever, which they resemble to a certain degree. On the other hand, puerperal fever, as is well known, is frequently complicated with purulent inflammation of the veins of the uterus, pelvis, &c., and in such cases there may be secondary articular disease, excited not by the fever, but by the inflammatory condition of the venous tissues, which accompanies it as a complication. Here there is purulent infection of the blood, superadded to puerperal fever. The disease is a complicated one; the symptoms peculiar to each element become masked, and they may be readily confounded. Yet by remembering the course and symptoms of uncomplicated purulent infection, we generally find our way through a labyrinth which were otherwise inextricable. That purulent inflammation of the joints does not essentially depend on puerperal fever, but on some other condition, is shown by the fact that it occurs after abortion in the early months of pregnancy, when improper means have been employed to evacuate the uterus, and when nothing resembling puerperal fever occurs. Here there are all the essential symptoms of purulent infection followed by articular disease; and although these unfortunate cases, for obvious reasons, are seldom investigated after death, yet the symptoms during life leave no doubt of their identity with purulent infection of the blood. Having noticed the peculiar symptoms which distinguish this form of purulent inflammation of the joints, the author insists on the necessity of not confining the *post-mortem* examination to the affected joint, but extending it to other parts of the body. The true nature of the disease is then revealed; for circumscribed abscesses or purulent infiltrations are almost always found in the lungs, liver, kidneys, or brain, in the heart, in the cellular tissue or muscles, in the uterus or some of its appendages, and finally in the minute veins of the spongy tissue

of bones. It should also be taken into account that this and other forms of secondary and purulent inflammation of joints occur under circumstances quite different from those attending other forms of articular disease. General states of the constitution, such as those arising from gout, rheumatism, syphilis, scrofula, &c., have no influence here, nor can it be traced to any of the immediate causes of ordinary synovial inflammation, as external violence, cold, moisture, &c. It often attacks the healthiest individuals in the prime of life—after amputation of a limb, for example. Unlike other articular diseases of constitutional origin, it is never chronic, but always of the most acute character, and when connected with the puerperal state it may appear to be epidemic. In describing the symptoms, Mr. Coulson, with all authors who have written on the subject, alludes to the shiverings, which are one of the earliest symptoms of the disease. These are so severe, and recur in such a manner from day to day, as successive depositions of pus take place, that inexperienced practitioners have mistaken the disease for intermittent fever. The rigors continue sometimes for half an hour, and are followed by slight perspiration; they may recur at determined intervals, but generally cease on the second or third day, after which they appear at very uncertain periods, or are noticed no longer. The fever also may be mistaken for typhoid fever; but, as the author observes, no medical man accustomed to watch the slow development and gradual progress of true typhoid fever could be deceived by the points of resemblance. In a great number of cases the respiratory organs are involved; the breathing becomes irregular and accelerated in paroxysms; there is a dry hacking cough, with sub-crepitating râle, and in some few cases with the exhalation of a purulent odour from the breath. These paroxysms of oppressed and hurried breathing, with short dry cough, are extremely characteristic; they are very often preceded at each return by rigors, and the author considers them as indicative of successive depositions of pus in the substance of the lungs. It is easy to understand that the symptoms may be modified according to the peculiar circumstances under which the disease may have been developed in the first instance. It may arise, for example, after injuries of the brain, when the early symptoms will be complicated with, and masked by, those of cerebral irritation, or of actual inflammation of the meninges. In cases of this kind, the secondary deposit often occupies the substance of the liver to a great extent, and if the cerebral symptoms be absent or slight, the disease may be mistaken for an acute affection of the liver. As for the puerperal form, the author draws a distinction, which seems important for understanding the true nature of the disease. In many cases it appears as a complication of puerperal fever, especially of that form depending on uterine phlebitis, and then all the early symptoms are masked by those of the puerperal fever, from which it is almost impossible to separate them. But in other cases, although the woman has been recently delivered, she does not present the ordinary symptoms of the fever just mentioned; she appears to be doing well for several days; there is no tenderness or tumefaction about the lower part of the belly, but after a few paroxysms of shivering, with anxiety of countenance and acceleration of the pulse, the joints suddenly become painful, the tongue becomes dry, and the symptoms of purulent infection follow the course already described. In this uncomplicated state, the disease receives no peculiar stamp from the puerperal state, but presents exactly the same symptoms, and runs the same course as it does when affecting males after injuries to, or operations on, the genito-urinary organs. There is, however, this difference in the results; that the disease is of a much more fatal character in puerperal females than in males, a fact admitting of explanation from the circumstance of its being so frequently complicated in the female with puerperal fever, whereas in the male it arises from laceration of the urethra, irritation of that canal or of the bladder, and from other injuries which are not in themselves of a dangerous character. Puerperal synovitis in females recently delivered is a very fatal disease. Dr. Merriman, Professor Cruveilhier, and other writers, state that they never saw a patient recover. The author, however, quotes a case of recovery related by Mr. McWhinnie. The nature of the disease is next discussed, and on this point Mr. Coulson, after repeating the opinion which he gave many years ago in his work on *Dis-*

cases of the Hip-Joint, observes: "I would add, from farther experience, that I now believe the contamination of the blood to depend on the admixture of pus, as such, circulating with the vital fluid. The pus is not absorbed, but admitted directly into the circulation through some breach of surface." The following reasons may be adduced in support of this view: In the great majority of cases the formation of pus in some tissue primarily affected can be proved by dissection. A few cases are on record where no trace of pus could be discovered in those tissues supposed to be the primary seat of disease, and hence it has been argued that these cases are sufficient to justify the surgeon in removing the disease from purulent infection of the blood. To this it may be answered that the identity of course, symptoms, and results in various cases, naturally leads to the inference of an identity of immediate cause; and that as knowledge extends, under the influence of more careful and accurate *post-mortem* examinations, numerous cases are now shown to belong to this class of purulent infection; whereas, formerly, they were either inexplicable or referred to causes from which no rational explanation of their phenomena could be obtained; thus, Dr. Hall was unable to understand why the eye should become inflamed after parturition, and still less why inflammation of the globe should prove rapidly fatal. These points are now satisfactorily explained, by showing that such inflammation of the eye is not peculiar to puerperal females, but that it occurs in other cases of purulent infection. Again, the typhoid symptoms under which many patients sink after amputation, after trephining, &c., and the abscesses discovered after death in the lungs, liver, &c., did not admit of explanation until it was shown that suppurative inflammation existed in all these cases in the cancellous structure of the bones. The same remark applies to the few cases in which puerperal disease of the joints existed without any morbid alteration in the structure of the uterine veins. This exemption of the uterine veins has been considered sufficient by accoucheurs to reject the theory of purulent infection; but the surgeon not accustomed to confine his investigations to the uterus alone would not have remained satisfied unless every other organ in the pelvis, and the whole genito-urinary system, had been carefully examined. Inflammation of the mammary veins, or of those of the rectum, are just as capable of exciting purulent infection as inflammation of the vessels of the uterus or its appendages. If these views be correct, it is evident that the treatment of purulent synovitis from infection of the blood becomes a secondary consideration. The surgeon's chief efforts should be directed towards counteracting the poisonous condition of the blood which has given rise to the constitutional disease. The local malady is merely one of the effects of the constitutional one. Various modes of treatment, both general and local, have been tried by the author, and by other practitioners, but it is to be regretted that none have been attended with any benefit.

Dr. Copland eulogized the value of the paper just read, on what might be called consecutive abscess. The views advanced by Mr. Coulson on the pathology and treatment of the disease were borne out by his (Dr. Copland's) long experience, both at the General Lying-in Hospital and in private practice. Thirty years ago, attending a case of confluent smallpox, in which purulent matter was absorbed into the blood, the joints became affected, and death was the result. It was not necessary, however, that the matter absorbed into the blood should be purulent, for a sanious secretion was not only as bad, but might be even worse. He recollected, many years ago, before the article "abscess" in his Dictionary was written, to have attended a woman suffering under a sanious form of leucorrhœa, accompanied by slight ulceration of the uterine neck. This patient was soon afterwards attacked by purulent inflammation of one of the eyes, which was destroyed. She died afterwards from purulent disease of the joints. The os uteri was found ulcerated, and there was a sanious fluid in the vagina. The circumstances attending the absorption of poisonous matter into the blood might vary very much, but the symptoms were usually the same. It was most important that the early symptoms should be detected. These consisted of rigors, followed by sweating, with pains in the joints. When detected early, a decided plan of treatment might be of good effect. The indications were, first, to support the powers of life; secondly, to

depurate the blood, if possible by purgative medicines, and such as acted on the skin and kidneys; and, thirdly, by local applications. To effect the first and second, he had employed the compound tincture of bark, with serpentary, chlorate and subcarbonate of potash, or quinia and camphor. To the joints he had applied the spirits of turpentine, cold, on linen, three or four times a day. These were the means most likely to succeed.—*Lancet*, Oct. 22, 1853.

49. *Osteocephaloma of Humerus—Amputation at Shoulder-joint—Secondary Hemorrhage from Axillary Artery arrested by Compression.*—Dr. Geo W. Campbell, of Montreal, relates (in *The Medical Chronicle*, July 1853) a case of amputation at the shoulder-joint, which is interesting as showing that secondary hemorrhage from arteries of primary magnitude may be successfully treated by compression, at some distance from the bleeding point upon its cardiac aspect.

The subject of this case was a man twenty-eight years of age, admitted into the Montreal General Hospital for a large tumour, involving the whole circumference of the middle third of the left arm. Amputation at the shoulder-joint was deemed advisable, and was performed on the 22d of Sept. 1851.

Everything progressed favourably till the 14th day, the wound having almost completely united, excepting for about an inch near its centre, where the ligature from the axillary passed out. On the afternoon of this day an alarming hemorrhage occurred. The gush was sudden, and the stream large, and it certainly would have proved rapidly fatal, had not pressure been promptly applied by Mr. Sinclair, the acting apothecary; as it was, several pounds of blood were lost. At a consultation of the staff of the hospital, it was determined instead of performing deligation of the subclavian at the outer border of the scalenus anticus muscle, or opening up the wound and attempting to secure the bleeding axillary, to try the effects of compression with the horseshoe tourniquet of Signorini. From the tilting upwards of the clavicle, the anterior pad of the instrument was placed below that bone over the spot where the subclavian was felt pulsating upon the first rib, the posterior pad being applied to the dorsum of the scapula. From the tendency to slip upwards, it was found very difficult to keep the instrument in its position; but with the assistanee of the pupils attending the hospital, compression was maintained pretty steadily for five days, and then suspended, as it became irksome to the patient, and all tendency to hemorrhage seemed to have ceased. This state of affairs continued till the 21st day, in spite of the frequent disturbance occasioned by a diarrhœa, which had troubled the patient more or less for a week previously, and which was found very unyielding to treatment. At 9 P. M. on the evening of that day, arterial hemorrhage again broke out, while the patient was in the act of describing a peculiar sensation which he then experienced, and which had also preceded the former attack, as if something fluid was trickling from the shoulder to the points of the fingers; only a few ounces of blood were lost, as the house surgeon, Dr. Reddy, immediately reapplied the compressor, with a broad leather pad under the posterior limb of the instrument, to diffuse the pressure over a large surface, and a bandage which retained it securely in its place. The compressor was worn after the occurrence of the second hemorrhage for three weeks, until the ligature had come away, and the stump had completely cicatrized. The pressure was borne with great fortitude by the patient, who left the hospital about two months after his admission perfectly restored to health, and has continued free from any return of the disease up to the present time.

The tumour was found to consist of the humerus expanded into a mere shell containing medullary matter.

OPHTHALMOLOGY.

50. *Mydriasis.*—The following ten cases of mydriasis occurring in the practice of Mr. Bowman are reported in the *Med. Times and Gazette*, July 23, 1853:—

Case I. *Single mydriasis, with rheumatic history; recovery.*—Mary Jones, aged

26, a married woman, of sanguine temperament, applied for advice, on the morning of April 28, stating, in great alarm, that she had just discovered that she could scarcely see at all with her right eye. No pain or other unusual sensation had been experienced in the organ, nor had it been subjected to any injury. The pupil of the affected eye was seen on examination to be dilated to almost the utmost possible extent, the iris being contracted to little more than a thick rim, and quite motionless, while that of the opposite eye was of natural size, and moved readily. The sound eye being closed, she had full perception, but could not distinguish near objects, on account of the mist and haziness which appeared to surround them, and was quite unable to read the largest print She could, however, see things across the street with tolerable distinctness. A piece of card, with a small round hole in the centre, being held close before the eye (an artificial iris), it was found that on looking through it she could read almost as well as ever. The woman was suckling; she stated that she usually enjoyed good health, with the exception of suffering frequently from rheumatic pains in the joints, which, during the two previous days, had been unusually severe. Guided by this history, Mr. Bowman expressed an opinion that the disease was probably connected with rheumatism (rheumatic neuritis, and consequent paralysis); and encouraged the patient by stating that he thought it would probably pass off in a short time. ℞. Haust. magnes. sulph. c. vin. colch. ʒj, n. et m.; empl. lyttæ pone aur. dextr.

May 1. The pupils are of equal and natural size, and the patient can see as well as ever. The diagnosis as to cause is farther confirmed by the fact that the medicine has acted freely on the bowels, and that the rheumatic pains in other parts are much relieved.

Case II. *Mydriasis of left eye; recovery.*—John Templar, aged 51, a stout, healthy man, admitted February 10. While working, a month ago, his left eye was struck by a small bit of iron; there was no visible wound, and on the following day the eye was quite well, and the vision continued perfect until four days ago, when he noticed that everything looked misty, and found that he could not read the largest type. There has been no pain in the eye or head, but the light dazzles somewhat. The pupil of the affected eye is fixed and widely dilated; he can see distant objects, and near ones also, on looking through a pin-hole aperture. There was apparently nothing in the condition of his general health to account for the disease, and Mr. Bowman accordingly prescribed for it as one of simple paralysis. Empl. lyttæ reg. supra-orbit. sinistr. The raw surface to be sprinkled with the sixth of a grain of powdered strychnia on the following morning.

February 14. Two applications of the strychnia have been made without any unpleasant result. Rep. empl. lyttæ et strychn.

17*th*. There is much improvement both in vision and in the mobility of the pupil. He states that he has several times felt giddy, "as if he had been drinking;" no twitching of the muscles has, however, occurred. Rep. empl. lytt.; applic. pulv. strychniæ o. m.

21*st*. On the day after last note he had a severe rigor, and has felt giddy and ill ever since, and, in consequence, the strychnia has been applied but once. He is now feverish, with furred tongue, and violent pain in the forehead. ℞. Mist. salin. ʒj, ter die; omit. omnia alia.

24*th*. Is still giddy, very pale, and feels ill. Pulse small; tongue thickly furred; great pain in the forehead. No improvement in sight since the 17th. Mist. gent. co. ʒj, ter die.

28*th*. Is better, the pupils act well, but the sight continues dim. Every morning, about 1 A. M., he is regularly awoke by severe frontal headache attended with fever, which after a time gives place to perspiration, and about 8 o'clock the pain usually disappears. ℞. Haust. quin. ʒj, ter die.

March 9. Pain much diminished, and the febrile paroxysms have ceased to occur.

16*th*. The iris is freely movable, but the pupil does not contract to quite its proper size. He can see well, and is improving in health.

April 13. Excepting that the left pupil is still a little larger than the right,

the affected eye is in a perfectly natural condition. The man has quite regained his health. Discharged.

Case III. *Mydriasis attended with mental and physical depression; recovery under tonic treatment.*—Henry Peller, aged 30, a bookbinder, admitted June 29. He is a cachectic man, and twice during the last four years has been subjected to a course of mercury for the cure of syphilis. With this exception, he considers that his health has been good; but, for several months, he has been out of spirits, and subject to melancholy. He is married, but not living with his wife; states, with regard to venereal indulgence, that he does not have connection oftener than once a week, and is occasionally subject to involuntary seminal emissions. Confesses to frequent masturbation. The day before yesterday he could see as well as ever; but during the morning he found, whilst at work, that his right eye was as if covered with a film, and, on mentioning it to his fellow-workmen, the latter informed him that the black part of the eye was much larger than on the opposite side. The pupil of the left eye is now perfectly natural, but that of the right is motionless, and twice the size of the left; pulse 80, feeble; bowels open, appetite good; is restless, and sleeps badly. In addition to advice in respect to his habits, Mr. Bowman prescribed—Extract hyoscyam. gr. v, o. n. ℞. Am. sesquicarb. gr. vij; infus. gent. co. ℥j; tinct. lupuli ℥ss, ter die.

July 20. He is in much better health; but the condition of the eye remains nearly the same, the iris being, however, a little more mobile. Rep. mist. sine ammon.

27*th*. The iris acts much better. Pt.

August 7. Pupil of natural size, and iris fairly active. Vision is very much improved, but still a little misty. To continue the medicine.

September 7. Discharged quite well.

Case IV. *Double mydriasis; recovery; relapse three years afterwards.*—M. B., aged 46, a man in somewhat weak health, overworked, and who had recently suffered from carbuncle, applied on account of mydriasis of both eyes, which had existed for about two weeks, attended with all the usual symptoms, excepting that when looking through a pin-hole aperture he could not see perfectly unless a convex lens were added. The affection was already passing off in the left eye, but not so with regard to the right. Under a tonic regimen the disease was quite well in both in about four days; but the patient remaining weak, nervous, and occasionally subject to double vision, Mr. Bowman ordered him into the country for a few weeks, where he soon regained his health. The chief feature of interest in the case was, that he stated that he had suffered a precisely similar attack three years previously, for which he was under the treatment of the late Mr. Dalrymple.

Case V. *Mydriasis, with rheumatic history; recovery.*—M. M., aged 40, a man of hale-looking aspect, but considering himself in scarcely average health, was admitted on April 3. Three weeks previously he had found that the sight of the right eye was misty, and a few days before admission he noticed, on examination, that the pupil was much enlarged. He stated that he had been subject to rheumatic pains in various parts; had had no head symptoms; and there was no visible disease about the eyeball other than a fixed and widely-dilated pupil. He could see distant objects well, and, with the assistance of a perforated diaphragm, near ones also. Ung. antim. pot.-tart. supra-orbit. reg. infricand. ℞. Pil. hydr. gr. v; ext. acet. colch. gr. j. Ft. pil. alternis noctibus sumend. Haust. cath. ℥iss, p. r. n.

The patient lived at some distance in the country, and was not seen again for three weeks.

May 21. The pupil now acts with tolerable promptness, and, on exposure to light, contracts to a moderate size. Vision is much improved. This patient afterwards recovered perfectly.

Case VI. *Double alternating mydriasis.*—We must allude to the next case very briefly; its sole peculiarity was the change of the affection from one eye to the other. Eliza Santon, aged 25, married, a nervous, very anxious woman, subject to confusion in the head; she has very misty and indistinct vision with the left eye, the pupil of which is fixed and dilated. The affection commenced

ten days ago in the right eye, and, after a few days, changed its seat, and attacked the left; the right is now quite healthy; pulse 80; bowels open; tongue furred and clammy. Under the use of stomachics and counter-irritants the patient recovered.

Case VII. *Mydriasis without apparent cause; failure of treatment by the ergot of rye.*—Charles Church, aged 24, applied on account of uncomplicated mydriasis of the left eye, attended with all the usual symptoms, and of three weeks' standing; no cause could be detected. Mr. Bowman made trial of the ergot of rye, a remedy formerly reputed to possess a specific power in inducing the iris to contract. The powder was first used as a snuff, then the tincture was administered in half-drachm doses three times daily, and lastly the powder in ten-grain doses. None, or, if any, the least possible improvement resulted, and the medicine had ultimately to be discontinued on account of headache. Mr. Bowman informed us that, in the numerous trials he had made with the ergot, he had never been able to prove its possession of any remarkable virtues in regard to this disease.

Case VIII. *Mydriasis after symptoms of cerebral derangement.*—William Shuttleworth, aged 32, a foreman in the docks, for six months subject to occasional tinnitus aurium, admitted June 10. A fortnight ago, while engaged in writing, he became dizzy for a short time, and never since has been able to see clearly with his right eye. There is no morbid appearance, excepting that the pupil is fixed and motionless. The left is healthy, and contracts quickly on the admission of light to the right, thus proving the retina of the latter to be unaffected; vision with the right eye is misty, not dark; distant objects are clearly seen, and near ones by using a perforated card; he has had no pain; general health good; is accustomed to live well; motion of lids perfect; bowels open; tongue thickly furred with a yellow coating. ℞. Pulv. purg. gr. x, o. n. Empl. lyttæ pone aur.

15*th*. Much the same; bowels freely open. Gutt. belladonnæ occul. dext. bis die applicand.

22*d*. Complains of pain in the temples; condition of eye the same. Omit the belladonna. ℞. Pil. purg. gr. v, o. n.; hausti quin. ℥i, bis die.

29*th*. No improvement. Rep. med. A blister is to be applied over the eyebrow, and dressed with powdered strychnia.

July 13. The blistered surface has healed. The pupil is certainly less dilated, and the vision is more distinct. Rep. empl. lyttæ.

17*th*. Pupil yet smaller. Pt.

20*th*. Condition of eye stationary. ℞. Strychniæ gr. $\frac{1}{16}$, ter die sumend.

This patient improved greatly subsequent to the last note, but was not well at the time when he ceased to attend.

Case IX. *Mydriasis complicated with ptosis, etc.; recovery under the use of mercury.*—The following case is one which may seem not to come within the definition of mydriasis, since there was evidence of disease of other parts of the ocular apparatus besides the iris. That disease, however, stood in relation to it of a complication, and not a cause. The case differs, probably, from one of simple mydriasis, solely in the circumstance that the affection of the nerve-trunk, instead of being placed immediately before its ultimate distribution in the iris, was situated much nearer the brain, perhaps within the skull, and involved a larger and common trunk, thus producing paralysis of the iris, but also of something more, viz. all the structures supplied by the third nerve. That disease was probably organic, consisting of effusion, either hemorrhagic or inflammatory.

Elizabeth Martin, aged 37, single, in good health, was admitted August 9, suffering from complete ptosis of the right eye, with fixed and dilated pupil, and being also unable to rotate the eye inwards, or turn it easily either upwards or downwards. The dilatation of the pupil was attended by the usual symptoms; everything appeared misty and indistinct when the sound eye was shut, and, on attempting to walk, she turned giddy, and almost fell; yet, by the aid of a perforated diaphragm, she could see distinctly. She stated that, about a month previously, she one evening perceived suddenly a mistiness coming over both eyes, which induced her to rub them rather forcibly; the left soon recovered, but about an hour and a half afterwards she noticed that the right lid was com-

pletely dropped. She had no headache, but thought that she might possibly have taken cold, having been sitting in an open window. Had since been under medical care, and treated with blisters and purgative medicines. ℞. Calomel gr. ij; pulv. Doveri gr. vi, o. n.; empl. lyttæ pone aur. dextr.

16*th*. There is increased power of elevating the lid. Pt.

19*th*. Not much improvement; gums just beginning to be slightly sore. ℞. Calomel gr. j; pulv. Dov. gr. vj, o. n.

23*d*. Can raise the lid almost as well as ever, but the iris and the recti muscles remain almost powerless. Rep. empl. lytt. et pulv.

26*th*. Increased power over the recti; but the pupil, although somewhat smaller, is not mobile; gums less sore. Rep. pulv. cum cal. gr. ij, singul.

30*th*. Iris more active; sight much improved; can read small type. Rep.

September 2. Pupil little above natural size, freely movable; mouth very sore. Rep. pulv. cum calomel gr. j, tantum singulis; haust. quinæ ℥j, bis die.

13*th*. Farther improvement; ptyalism has subsided.

October 18. The eye is quite natural in its condition in every respect. Discharged.

Case X. *Single mydriasis, with rheumatic history*, is chiefly noteworthy as occurring without other apparent cause in a strong young man, aged 22, who had been frequently subject to rheumatism. The symptoms were well marked, and were relieved by anti-rheumatic medication.

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51. *On the Removal of a particular kind of Opacity from the Cornea.*—Mr. H. Haynes Walton has revived the nearly obsolete method of removing opacity of the cornea with the knife, and relates the following case, in which he resorted to this plan of treatment:—

Elizabeth Wheeler, aged 29, became a patient here so long ago as 1845; attended me for some months, then resorted to some other ophthalmic institution; and ultimately replaced herself under my care in the summer of last year, 1852. Of the prior attendance I have no data; my notes apply to the re-entering. She was virtually blind, requiring to be led, and unable to perform any act demanding eyesight. The centre of each cornea, to an extent a little beyond the pupil (the left eye being the more affected), was occupied by a dense opacity, slightly raised, and which gave in profile somewhat the appearance of "conical cornea." The form of each was irregularly spherical, with sharp outline. The colour, French-white, with dots or mottlings, not unlike those which appear on the back of the cornea in the affection called "aquo-capsulitis." Altogether, the appearance was peculiar and striking, differing from that of ordinary opacity, and conveying the idea of being due to a deposit of a substance probably cretaceous. The remainder of each cornea was transparent; otherwise the eyes seemed healthy. When the pupils were dilated, she could see to move about in the house alone; but there was not sufficient sight for any employment.

Nothing of her history of any value could be gathered, and a long examination elicited merely that, from childhood, she had been subject to inflammation of the eyes, and her blindness was of about ten years' duration.

Reflecting on the insufficiency of previous treatment, and on the physical character of the disease, I concluded that I had before me a case that warranted operation. I decided to employ the miniature gouge, which, as you know, I generally use to remove foreign substances from the cornea, and to pick away, as it were, the opacity. This I considered safer than to use a knife.

I selected the right eye, picked away at the outer margin of the opacity, detaching some, and was not a little gratified to find that it was superficial, and, as I hoped, not deeper than the anterior elastic lamina. Finding my attempt successful, the opacity reduced, and transparency of the cornea thus far restored, I repeated my little process four times, at intervals of a month, and operated twice on the left eye. Now, there was vision enough with the right for her to read large type, and with the left she could move about alone. Still, in both, especially the left, some opacity remained.

She ceased to attend me from this period till the present summer, when I operated twice more on the right eye, and nearly, but not quite, established a clear cornea, a small spot of opacity passing deeper than I deemed it prudent

to penetrate. The left eyeball, too, was scraped a few times, and here, also, a central deep bit resisted removal.

To conclude the report, the appearance of the eyes is so far natural that it needs a careful examination in a favourable light to detect the remaining opacities. The form and outline of the corneæ are normal, and their entire surfaces reflect the light. Vision is nearly perfect. With either eye she can thread a common sewing-needle (No. 6), but the left is rather the more perfect.

As this is the only case of the kind of which I have personal experience, I have little to add to the facts that it affords.

Perhaps the first points of practical import that demand remark, are the fitness of the case for the means used, and the signs by which such cases may be diagnosed. Concerning the first, the opacity being raised, and to all appearance of an earthy nature and superficial, induced me to interfere. I suspected that there was a circumscribed deposit of a foreign substance, which could be removed, just as one would extract a particle of iron, or any other extraneous matter, imbedded in the cornea. As to the second, I trust it is sufficient to put you on your guard to prevent you from mistaking small staphylomata of the cornea, or fungous growth from the conjunctiva, for this affection. You must be observant to prevent such errors. It is by personal observation alone that you can learn their distinctive characteristics. Of the precise nature of the substance scraped away I cannot speak, as neither minute chemical nor microscopical examination was made. I did not detect any grittiness with the instrument; but this does not disprove an earthy nature.

I must tell you that this class of treatment is not restricted to opacities that are raised. So long as we have tolerable assurance that the loss of transparency of a part of the cornea is due to deposit of earthy material, there can be no reason against operating, although such deposit does not interfere with the natural outline of the part. At the same time, the opposite state renders diagnosis more certain, insomuch as it goes to prove that there is some material superadded. Nor does the practice end here; it has been applied to opacities, the result of cicatrices from loss of substance of the cornea, or from opaque deposit, the consequence of inflammatory attack; but I should be travelling away from the case before us to enlarge on this; you may find a full account of the subject in my work on *Operative Ophthalmic Surgery*, in the chapter on the removal of opacities of the cornea by operation. I shall, therefore, confine myself to a short statement from Mr. Spencer Wells, who was present at one of the occasions of my "scraping." Mr. Wells saw Malgaigne perform his second operation of paring opacities of the cornea, at the Hospital of St. Antoine, Paris, in 1845, as follows: He made an incision above the upper edge of an opacity, which covered the lower part of the cornea, and divided the external laminæ. He then fixed the edge of the opaque portion with fine forceps, and on raising it this peeled off very easily, and the separation was completed by another incision round the lower edge. Mr. Wells saw the first patient upon whom M. Malgaigne had operated six months before, and the cornea was perfectly transparent. Mr. Wells tells me that he has himself repeated this operation in two cases, with equally favourable results.

You should realize to your mind that this application of practical surgery has reference to a portion of the eyeball, about the thickness of one's thumb-nail, and to separate the component parts of which, even on the dead eye, demands exquisite manipulation.

Let us now inquire a little into the conditions essential to the success of scraping the cornea. It is necessary that that portion of it posterior to the operation do retain its transparency, and that the repair of the injury inflicted by the instrument be effected by transparent material. I imagine that little is to be apprehended from failure in the former, and the fulfilment of the latter must, I conclude, depend on the depth to which the true corneal tissue, the laminated part, is penetrated.

I strongly suspect that the perfection of repair differs in the two instances of loss of structure from ulceration, and from wounds, being by far more complete in the former. That a breach by ulceration, provided it be small, which will penetrate far into the laminæ, nay, even go through them, may, under

favourable conditions, be filled by a material in no respect inferior in transparency to the original structure, while the removal of any of the laminæ by art, or the separation of them, must be attended with the greatest risk of opacity, and that in proportion to the extent of the wound. It is said that Malgaigne, who made a great stir about the operation at the time of its revival among educated surgeons, for it seems that it had lapsed into the hands of itinerant oculists, sought to convince himself of its practicability by removing laminæ from the cornea of animals, and obtained success that encouraged him to operate on man. The chance of inflammation of the cornea supervening on any of these operations, and so spoiling that which had been transparent, must be taken into the general account in deciding on the mechanical treatment of opacities. The dread of this was the reason of my proceeding cautiously and in so piecemeal a manner, effecting by many stages what might perhaps have been accomplished at once, or at least by much fewer operations. I have nothing to regret from my caution. But slight action followed each of the applications of the gouge, and the effect so caused passed off in two or three days. It is probable, judging from the result of the operation, that the instrument never penetrated beyond the anterior elastic lamina. The restoration of epithelium, always rapid in slight abrasions of the cornea, was quickly effected.—*Med. Times and Gaz.* Nov. 5, 1853.

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52. *Ossification of the Vitreous Body.*—In Virchow's *Archiv.* for 1853, p. 580, Dr. Von Wittich has published the dissection of the disorganized and shrunken eye of a man aged 60, in which the posterior part of the vitreous body appeared converted into true bone. The choroid was thrown into shrivelled folds, the capsule of the lens opaque, and the lens itself the subject of earthy deposition. Traces of the retina were found lying behind and surrounding the bony mass which occupied the posterior part of the vitreous humour. This substance was true bone, as evidenced by its numerous corpuscles; it was cup-shaped anteriorly towards the lens, passing into a softer semi-gelatinous substance, which was evidently altered vitreous humour, and upon the anterior surface of which the zonule of Zinn could be distinctly observed. The bony substance sent forward small prominences into this softer matter.

Our author concludes from the true ossification here observed, that the vitreous body possesses a true cell-texture, as, in tissues destitute of this, we may have calcareous matter deposited, but not true bone formed.—*Association Med. Journ.* October 7, 1853.

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53. *Presbyopic Amblyopia.*—Under this name, M. Sichel describes (*Ann. d'Ocul.* February, 1853) the weakness of sight induced in long-sighted persons by forcing their eyes to look habitually at objects within their true focal distance; reading, sewing, etc., without the necessary glasses. Now, with all respect to M. Sichel, we cannot help thinking that we have here no novelty, but merely asthenopia, accompanied with more or less ocular congestion and irritation.

Let us keep clearly in view the two elements of this complex malady: *asthenopia*, consisting in an impaired power of adjusting the eye to the vision of near objects; and *amblyopia*, consisting in irritability of the retina, and differing from amaurosis in being a symptom of exhaustion and morbid excitability, and not of paralysis, although it may of course end in that.

The blindness of the amaurotic is constant; that of the amblyopic is induced by exertion of the organ, and disappears when it is allowed to rest; that of the asthenopic is, properly speaking, not blindness at all, since the smallest object can be seen at all events for a few seconds, and distant objects always well. We cannot see why asthenopia, induced in a presbyopic person by injudiciously reading or sewing at the ordinary distance, should in its nature be a different disease from the asthenopia induced in a person of ordinary vision by engraving or watch-making at four or five inches distance. Nor do we think that M. Sichel has much enlightened us in the matter of treatment.

Rest to the eye, and its employment on distant objects only; local depletion, and counter-irritation when necessary; and a judicious derivative and altera-

tive general treatment, are surely just the means which any well informed ophthalmic surgeon would use in such cases, keeping always in view that the disease is one of local exhaustion, often complicated with congestion, and almost always with more or less constitutional derangement and debility.—*Assoc. Med. Journ.* Oct. 7, 1853.

MIDWIFERY.

54. *New Method of inducing Premature Delivery.*—Dr. Scanzoni was induced, by observing the active sympathy between the breasts and the other parts of the sexual apparatus, to try to produce premature delivery by irritating the nerves of the mammary glands. The first experiment was made upon a young woman, aged 24, who, two years ago, had been delivered by perforation, in consequence of contraction of the pelvis. In the thirty-second week of utero-gestation, apparatus constructed of caoutchouc, forming sucking-pumps, were put upon the nipples. During three days they were used about seven times, the process going on upon each occasion for two hours. After the third application, the neck of the uterus became shortened; after the sixth, severe labour-pains came on; after the seventh, the child was born.

The only danger likely to ensue from this very simple method of treatment is inflammation of the mammæ; this can be met with proper treatment.

A second case, of similar kind, occurred to the author. A young woman, *enceinte* for the first time, suffered so severely from dyspnœa, connected with organic disease of the chest, that premature delivery was necessary for the preservation of her life. After the third application of the sucking-pumps, an apparently dead child was born; respiration, however, was soon re-established. The author remarks that this case is not quite conclusive, because premature delivery occurs often in connection with severe dyspnœa, independent of other influences.—*Med. Times and Gaz.* Oct. 1, 1853, from *Verhandl. der Med. Phys. Ges. zu Würtzburg*, 1853.

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55. *Sudden Death during Parturition.*—Dr. Crooke records, in a late number (Sept. 28, 1853) of the *Dublin Medical Press*, the following interesting case:—

"M. H., aged 36, was brought in a car to the Macroom Union Infirmary on the 3d inst. She stated that she was in labour of her sixth child; that her illness commenced two days previously, while travelling to join her husband, who had obtained employment in a distant part of the country; that she had not expected her confinement for another month; that she had been received into a farmer's house, and kindly treated. Whilst answering my questions, she had a sharp pain, and, on examination, I found the os dilated to the size of a crown-piece, and very soft and yielding, a bag of membranes presenting, but no part of the fœtus was within reach. I should have conceived her to be not more than six hours in labour, were it not for her own statements, corroborated by the woman who accompanied her, to the effect that she had suffered occasional strong labour pains for forty-eight hours previously. She was a remarkably handsome, well-formed woman. Her circulation and respiration were good, and all the symptoms seemed to promise a safe, if not a speedy delivery. I ordered a domestic enema, and left her in charge of a careful, intelligent nurse-tender, with directions to send for me when her labour was more advanced. In exactly an hour after, I was hastily summoned, and was at her bedside in ten minutes, but found she had expired in a few seconds after the message was sent to me. The nurse informed me that she had not left her for an instant; that her pains had not altered, either in character or frequency, until within a few minutes of the fatal termination; that then, during a stronger pain, a small quantity of liquor amnii was discharged; that shortly after, a powerful expulsive effort followed, during which her face and neck became very livid; that, when the pain ceased, she complained that her heart was leaving her; that her respiration

became suffocative, and she died in a few minutes. Having satisfied myself by auscultation that the fœtus was not living, I did not perform the Cæsarian section. I made a careful *post-mortem* examination in eighteen hours after. The body was well formed and moderately fat. The chest was very broad, and the mammary glands well developed. The face was pallid, and on the front of the neck there was considerable ecchymosis. The uterus was healthy; it contained a male fœtus of about seven months, very much macerated; the breech presented low down in the pelvis; there was a turn of the cord round the neck. The placenta was very firmly attached to the upper and anterior part of the fundus, and the usual quantity of liquor amnii was present. All the abdominal viscera were perfectly healthy. On opening the cavity of the chest, I found a quantity of fluid blood and some coagula, and I soon traced the source of it to be a rupture in the right pulmonary artery, just where it passes through the arch of the aorta. The heart and lungs were healthy, and the ruptured vessel did not indicate any proof of disease or weakness. Here, then, was the cause of death; it was altogether a fortuitous accident which no treatment could have averted; yet had this case occurred in private practice, where a *post-mortem* examination was not obtainable, the attending surgeon would have found it very difficult to absolve himself from blame, and the occurrence may have produced an injurious influence upon his practice for years."

56. *Effects of Menstruation on the Milk of Nurses.* By MM. Becquerel and Vernois.—Upon the effect, which the occurrence of menstruation exerts in women who are suckling, there is discrepancy of opinion among authors, the majority, however, with the public at large, believing in its deteriorating influence. So great is the difficulty in obtaining true statements upon this point, that, among the great number of hired nurses in Paris, the authors have only been able to examine the condition of the milk in three women while actually menstruating. In these, the density of the fluid was found slightly diminished, as was the proportion of sugar, and the proportion of water was sensibly so. The solid parts were notably increased, especially the casein. The authors cannot believe that such changes in composition can induce any mischief beyond some temporary derangement in the digestive organs, and even this might be prevented by causing the child to suck less, and letting it drink a little sugared water, to replace the sugar and water lost during menstruation.

In the discussion that followed reading the paper, M. Roger observed that, while attached to the Office for Nurses, he had paid considerable attention to this point, and that he had arrived at the following conclusions: If the menses reappear easily, without pain or derangement of the nurse's health, while her milk is under 12 or 15 months old, and the quantity of blood lost is normal and moderate, the quantity of milk does not become diminished, or its qualities altered, and the child does not suffer from its use. If, however, the menses are too abundant or too frequent, the milk may diminish in quantity or disappear. The same effect is also produced, though more slowly, in some days or weeks, when the menses are prolonged for a week, so that the loss is considerable. The milk will much more certainly dry up if the menses reappear at an advanced period of lactation—this being then the signal of the imperfection and approaching termination of the secretion.

When the milk becomes thus diminished, it rarely exhibits the physical characters of poor milk; but by its density, whiteness, and the excess in number and size of its globules, it more approaches in character and richness cow's milk. When the menstrual epochs reappear with difficulty, and are attended with pain, indigestion, diarrhœa, &c., or are preceded or followed by leucorrhœa, the child may suffer symptoms due to indigestion induced by the altered characters of the milk, the alteration of the milk chiefly consisting in increase in the number and size of the globules. These influences are, however, only temporary, and the milk soon recovers it normal character. The ailments which the child hence suffers are only temporary, and have been greatly exaggerated.—*Brit. and For. Med.-Chirurg. Review*, October, 1853, from *L'Union Médicale*, No. 70.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

57. *Dying Declarations.*—A case of murder was tried before the Supreme Court of the State of Massachusetts, in May, 1853, Chief Justice Shaw presiding, in which this matter was considered. The facts are thus stated in the usual summary preceding the narrative of the trial.

Angelina Taylor, at the point of death, and conscious of her condition; but in consequence of wounds inflicted upon her head, being unable to speak articulately, was asked whether it was C. (Thomas Casey) who inflicted the wounds, and if so, she was requested to squeeze the hand of the person asking the question. Upon the above question being put to her with the accompanying request, she squeezed the hand of the person making the inquiry. Held that, under all the circumstances of the case, there was proper evidence for the consideration of the jury, they being the sole judges of its credibility, and of the effect to be given to it.

After this outline, only a few necessary explanations need be added. On the 17th of September, Taylor was found dead and his wife grievously wounded, in their house. She was alive, and continued so until the 21st. An axe, bloody, and with hair upon it, was found near the entry door.

The circumstantial facts were strongly in favour of the prisoner being the murderer. He had differences with Taylor. Tracks, as of a person running, were found in a ploughed field in the rear of the house. The shoes of Casey exactly fitted the tracks. A shirt, which he afterwards confessed to be his, was found in the wood through which he passed, rolled up, with stains of blood upon it. Indeed, he made a voluntary confession of his crime, while in jail awaiting trial.

The point of chief interest in this trial was the admission of the species of evidence noticed above. Mrs. Taylor, as has been stated, lingered more than two days, after the fatal blow was given, and retained her consciousness. The wound was such as to prevent her from speaking, except that in one instance she answered "yes," somewhat inarticulately. She was evidently conscious of what was passing round her, recognized her children and friends, and understood the questions put to her, and at the same time was aware that her chance of recovery was hopeless, and that she was at the point of death.

Upon the question, as above stated, being put to her, she took her hand out of the bedclothes, grasped the hand of the person named to her, and squeezed it for about half a minute, and then let it go.

This was repeated to at least four physicians in succession, at different times.

The wound, according to the testimony of the attending physician, Dr. Hoyt, extended from the eyelid six inches across the head; there was a partial paralysis; the brain protruded through the wound, and in washing the wound a small portion of the brain was washed away.

The court, on the objection to the admissibility of this kind of evidence, observed that all words were signs; some are made by the mouth, and others by the hands. If the injured party had but the action of a single finger, and with that finger pointed to the words yes and no, in answer to questions, in such a manner as to render it probable that she understood and was at the same time conscious that she could not recover, then it was admissible evidence.—*Commonwealth* v. *Casey. Monthly Law Reporter*, August, 1853. T. R. B.

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58. *On Vitreous Arsenious Acid.* By C. Brame.—The vitreous arsenious acid of commerce sometimes contains sulphur, and it is urged that to this cause we must attribute the action of iodine on it. Iodine exerts no action on the porcelanic acid, or on the crystallized acid.

I have sought for sulphur in the arsenious acid, which is wholly vitreous, and in the porcelanic with vitreous bands, but can find no trace of it. Specimens of each were dissolved in hydrochloric acid and in aqua regia, and no precipitate was obtained by the addition of chloride of barium.

It follows that vitreous arsenious acid, and that which is in part dentrified,

contain no sulphur, and that the distinctive characters which I have obtained by means of the vapour of iodine retain their full value.—*Comptes Rendus*, July 18, 1853. T. R. B.

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59. *Poisoning by a Decoction of Chemical Matches.*—Dr. Ferrari gives us the following extraordinary case in the *Medical Gazette of Lombardy*. A seller of matches, aged 22, half an idiot, accused of theft, was so much affected by the charge that he determined to poison himself. From want of other means, he took about two thousand matches, placed them in a pot filled with water, and boiled them. He swallowed this extraordinary decoction. In about twelve hours he was seized with vomiting, and brought up bilious and greenish matters containing portions of the matches. When seen two hours later, his countenance was much altered, but his tongue was healthy, his body cold, the abdomen soft, and the pulse small and slow. The vomiting continued, and there was violent abdominal pain. The day after, the abdomen was swollen, and fatal fainting fits occurred.

On dissection, the heart and its cavities were found filled with black blood, tending to the condition of clots. The stomach contained a fluid resembling tamarind water, without an offensive odour; its mucous coat was so softened that the handle of a knife, passed behind, readily detached it in a dissolved condition. It was the same with the duodenum. The remainder of the intestinal canal was healthy.

The poisonous substance in this case was phosphorus. The matches used were of two kinds; one united with chlorate of potash, and the other with nitre and the peroxides of lead and manganese. Both are brought into a state of union by gum-Arabic. It is probable that, in boiling, the phosphorus was converted into phosphoric acid, at the expense of the chlorate or the nitre. The antidote most certain would be calcined magnesia or its carbonate, in large doses, or lime-water, or soap and water.—*Gazette des Hôpitaux*, July 16, 1853. T. R. B.

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60. *Identity.*—A very curious case under this head is related in the *Monthly Law Reporter* for August, 1853, as occurring in Massachusetts; but as no physical marks are pointed out, beyond the personal appearance, I shall endeavour to state the principal facts as concisely as possible.

In February, 1852, a person named Hiram Shepardson, the keeper of a hotel at Roxbury, was arrested, indicted, and tried for obtaining a quantity of butter under false pretences. The person selling the butter, and his clerk, swore to the identity of Shepardson. They gave a description of his person, and swore positively that the defendant was this man. Two other persons, from whom it was asserted that he had purchased butter on the same day, swore as positively to his identity.

For the defence, an *alibi* was asserted, and evidence was put in to show that on the days charged he was not where the government charged that he was. The jury could not agree (seven for acquittal), and he was discharged.

Shepardson was then charged on a second indictment. The witnesses for the prosecution spoke with somewhat less certainty, and an *alibi* was again interposed. The jury here did not agree.

These circumstances led to farther examination. By means of inquiry as to the whip and sleigh in the possession of the actual criminal, another individual was discovered and arrested, and on bringing him to justice, "the witnesses who had sworn against Shepardson, when brought to see Holbrook (the actual criminal) admitted that they were mistaken, and that Holbrook was the guilty party."

Shephardson was honourably discharged in open court. T. R. B.

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61. *On the Employment of Iodide of Potassium as a Remedy for the Affections caused by Lead and Mercury.* By B. Melsens. Translated from the *Annales de Chimie et Physique*, June, 1849. By William Budd, M. D., for the *British and Foreign Medico-Chirurgical Review*, January, 1853.

This very important paper is deserving of every consideration and of extensive diffusion.

We shall endeavour to condense it as much as possible, without impairing its contents. Dr. Melsens early proclaims the objects he has in view: the *disease* caused by the presence of poison in the system, and the *cure*, by the expulsion of the poison out of the system. The principle of the treatment, by iodide of potassium, is to render soluble any metallic compounds which have become fixed in the human body, and to facilitate their elimination by uniting them with a substance most readily cast out of the system.

The old chemical view and object in these cases undoubtedly was to form *insoluble compounds* with the poisonous substance, such compounds being thought to have no action on the living economy. But this is not the case; so far from sulphate of lead, for example, being without action on the living body, I shall show that its presence inevitably causes death within a limited period; a fact which leads to a distinction between slow and rapid poisoning.

Iodide of potassium is harmless when taken in the dose of from 30 to 92 grains (two to six grammes) daily. This Dr. Melsens ascertained from his own experience, having taken, in the course of two months, 2,315 grains (150 grammes) without injury.

The kidneys are the principal outlet of the iodide of potassium. Its presence was readily detected in the expectoration, the perspirations, in the saliva, and in the tears. The mucus of the nose contained it, but in very small quantity. But, to my great surprise, it could not be found in the fecal matter of a number of persons who were taking it in large quantity. *The urine contained it largely.* Even when united with an active purgative, but a very small quantity could be detected. It is therefore with extreme difficulty that this salt can be made to pass through the bowels into the stools.

Every mercurial compound which can possibly occur in the living economy, even metallic mercury, is soluble in iodide of potassium. It may be considered as an established fact that the system may absorb and retain mercury for a number of years—under what forms, it is difficult to say; but probably from the insoluble compounds which the salts of mercury form, either with the organic or inorganic materials of the body, or with both conjoined. The principal combinations which might thus occur may be reduced to the following:—

1. Combinations of corrosive sublimate, whether in its simple state or as modified by the animal substances of the economy; viz. *a*, with albumen; *b*, with albumen and the materials of the brain; *c*, gelatine; *d*, the nitrogenous extractive matters of the blood, of muscle, of the urine, &c.; *e*, albumen, fibrin, muscular fibre, gelatine, whether in the natural state or modified by digestion; *f*, matters of the bile. 2. Mercurial soaps. 3. Phosphates of mercury. 4. Mercury in the metallic state.

Dr. Melsens has ascertained by experiments that all these compounds are soluble in alkaline or neutral pure iodide of potassium, dissolved in one of the liquids of the body.

Iodide of potassium traverses the system very rapidly. A person having emptied his bladder, took 77 grains (5 grammes) of iodide of potassium; a few minutes afterwards, iodine was detected in the urine. This experiment has been repeated, and iodine is always detected in the urine passed on the first occasion of a call to make water. Again, as a farther proof, Dr. Melsens took 679 grains (44 grammes) in eight days; 77 grains (5 grammes) daily, in four days; and 92 grains (6 grammes) in other four days. After having ceased to take the salt, I tested my urine, every time I voided it, with starch, an acid, and chlorine, and on the second day after that on which I ceased to take the iodide, I could no longer detect its presence, although the most minute portions of iodide added to the urine was made manifest at once.

It is not possible to give directly the same accumulated proof of the solubility of lead, as of that of mercurial compounds. Still, it is certain that the iodide of lead is soluble in alkaline liquids, and that it has a marked tendency to combine with alkaline iodides. I have proved that metallic lead becomes dissolved in a solution of iodide of potassium, rendered alkaline by potash. *Lead colic comes on more especially after the process of washing in the second water* (*lavage*

à l'eau seconde). It seems generally admitted that lead occurs in the form of a salt in the human body, whereas there is every reason to believe that it exists in a masked condition, or rather in the form of plumbate of soda. Painters, on being carefully questioned, with the view of fixing accurately the date of their attacks, and the circumstances under which they occurred, very often answer that they were seized with their pains after washing old paint. Now it is well known that this process is always done with alkaline solutions.

After stating the various propositions which we have given in italics, and the proofs under each, Dr. Melsens suggests that probably no other salts are preferable to iodide of potassium for the purposes indicated. An excess of common salt in the ordinary food seems, however, also useful as a prophylactic. Among workmen, who had escaped altogether, or on whom the scourge had fallen lightly, they always stated that they were fond of salted food. Dr. Melsens had occasion to make this observation in the case of ten workers in mercury.

Dr. Melsens next adduces *cases of lead poisoning* treated successfully with iodide of potassium. A house-painter, labouring under saturnine pains in the spine, in complete paralysis of the arms, and lead colic, who has been treated unsuccessfully at the Charité, took, from the 10th December, 1843, to the 13th of March, 1844, 200 grains of iodide of potassium, and at the end of this time was perfectly cured. Several other similar cases are enumerated, of which the details are given. Frequently, when the metallic compounds fixed in the body become through this mode of treatment dissolved or transformed, phenomena of acute poisoning occurred, occasioned by their liberation.

Neither sulphuric acid nor sulphates can serve as antidotes to slow poisoning by the salts or compounds of lead, the sulphate of lead being itself a slow but sure poison, capable of killing vigorous dogs in twenty or thirty days.

This last is proved by experiments made by him. The doses required seem, however, to be large. One dog was paralyzed on the eleventh day, after 108 grains of the sulphate; he then refused food, and died epileptiform, emaciated, and in a state resembling scurvy, on the 22d. Another dog took 293 grains, and died on the 28th day, with similar symptoms. In these instances, only a certain portion of the sulphate of lead can be absorbed, the rest passes with the excrement.

Sulphate of magnesia may be properly given in cases of poisoning by a soluble salt of lead, to act on the portion yet unabsorbed.

When dogs have been for some time under the poisonous influence of sulphate of lead, and iodide of potassium is administered suddenly, in pretty large doses, death will ensue. If both be given concurrently, no harm will follow. Iodide of potassium may therefore be employed as a prophylactic.

Dr. Melsens argues, that when the effects of lead taken into the system have reached a sufficiently advanced stage, and the mischief becomes aggravated by the employment of iodide of potassium, this aggravation is to *his mind a sure token of cure*, for it proves that the *remedy is acting*. Such results were obtained when white lead was given to animals.

Iodide of lead is itself a poison. 115 grains (7.50 grammes) of this salt, administered in the dose of one gramme at a time, in the course of seventeen days, caused the death of a dog. The morbid phenomena resembled those produced by the sulphate and carbonate of lead, except in the rapidity of their appearance. This animal had convulsions and fits on the sixth day, having then taken about 77 grains (5 grammes) of the salt. Iodide of lead is, therefore, a more active poison than the sulphate, being nearly on a par in this respect with the carbonate. But is this poison, administered as in the preceding case, less active when associated with the iodide of potassium?

The following is an experiment which answers this question. To be conclusive, however, it should be varied and repeated with the drugs in other preparations:—

A bitch of the same size and strength as the preceding took in thirty-three days, and generally in doses of 15 grains (one gramme) at a time, 216 grains (14 grammes) of iodide of lead. With every dose of iodide of lead, there were given 30 grains of iodide of potassium. In thirty-three days she had taken 370

grains (24 grammes) of the latter salt. The animal wasted much less than the former one; the paralysis, though easily recognized, was much less marked; to judge from her melancholy appearance, she was, however, very seriously affected. She died in a very few minutes after having taken 92 grains (six grammes) of iodide of potassium, which had been rendered slightly acid.

Cure of Gilders and of Workers in Quicksilver.—Dr. Melsens proceeds to relate some remarkable cases, which, however, we can only briefly notice. He mentions several instances of gilders, in which the use of the limbs had been lost and violent and constant pains were present. Most of them were cured by large doses of iodide of potassium (given every day), at the end of two or three weeks. The trembling was frequently such as to allow the patient to write only in the most scrawling manner, and the *fac similes* of their improvement in this respect are certainly remarkable.

In one case Dr. Melsens examined the urine of a patient on eight different occasions, in order to see if, under the influence of the treatment by iodide of potassium, the mercury would be found again in his urine. The first specimen contained mercury in perfectly recognizable quantity; the second also contained mercury, but sensibly less. In following the process employed for the first two specimens, he found no mercury in the third. The fourth specimen, examined by another process, gave scarcely an appreciable trace; but on distilling in a tube drawn out to a point, one of the slips of gold which terminated the pile he had used, Dr. Melsens obtained a small yellow sublimate, which, on the morrow, had become red. In dispersing this by the flame of a spirit-lamp, it became again sublimed with a yellow colour, passing afterwards into red. This is one of the characteristic properties of iodide of mercury.

It is not remarkable (says Dr. Melsens) to see a man under the influence of slow poisoning by metallic mercury, void, under the influence of iodide of potassium, iodide of mercury in his urine. This case was perfectly cured, "and this cure proves in the clearest manner, that when mercury is absorbed only in small daily portions, as is the case with those who work at the cold silvering process, iodide of potassium not only possesses the property of curing the patient, but acts also as a powerful prophylactic."

The following additional propositions are stated by the author:—

Iodide of potassium protects against or retards the phenomena of poisoning when the system is subjected to the action of metallic mercury.

Iodide of potassium renders medical treatment, or poisoning by certain salts of mercury, more active, and may occasion serious accidents.

Dumas, as long back as 1838 or 1839, enjoined, in his lectures, the importance of abstaining from common salt when calomel is given, and it is desired that it should remain in the state of calomel in the digestive tube. He has recommended, on the contrary, the addition of sal-ammoniac to corrosive sublimate in order to render it more stable and less easy to be decomposed when in contact with the fluids of the system. The researches of Mialhe need only to be referred to. If the same doses of calomel are given to two dogs, and to one, iodide of potassium is given at the same time, the dog which takes the iodide will be destroyed first if the doses of the two salts are at all large.

The same result happened when corrosive sublimate and iodide of potassium were given. There is a parallel to this in the *treatment of the secondary and tertiary disorders of syphilis.* The administration of the iodide of potassium often causes intense suffering in patients who have been treated by mercurials. To what is this owing? According to the opinions advanced by Dr. Melsens, two distinct effects are produced by this single agent—first, the compounds of mercury fixed in the body are rendered soluble and active; and, secondly, a form is given to them, which allows their rapid elimination. But, by the very fact, the patient is subjected anew to a mercurial treatment by the compounds of mercury already present in the body.

In these cases it is sufficient to begin with administering the iodide in a small dose. Fifteen grains a day are sufficient, increasing the dose if the patient bear it well.

In the *British and Foreign Medico-Chirurgical Review*, for April, 1853, there is a supplementary paper to that of Melsens, by E. A. Parker, M. D., Professor

of Clinical Medicine in University College. The nature of it will be understood by his preliminary remarks. "Dr. Melsens (he says) has shown that the compounds formed by the union of mercury and its salts, with certain of its tissues, can be destroyed and the metal be dissolved by the iodide of potassium, and be eliminated through the kidneys. The mercury was actually found present in the urine. The elimination of lead in the same way is rendered highly probable by the solubility of the saturnine salts and compounds in iodide of potassium, and by the undoubted prophylactic and curative powers of iodide of potassium in cases of impending or actual lead poisoning. He did not, however, chemically prove that lead could be made to pass off by the urine in the way as is undoubtedly the case with mercury, and he left, therefore, a gap in the chain of evidence for future observers to fill up. A case of saturnine paralysis has lately occurred to the writer in which iodide of potassium appeared to cause the elimination of lead in the urine—a fact which seems to complete the argument of M. Melsens."

A painter, aged 38, was admitted into University College Hospital, in February, 1853, who had suffered for more than two years with paralysis of the extensors, and in a less degree of the flexors of both forearms, and there was a well-marked blue line along the edge of the gums. He had been incapable of work for eighteen months, and had, therefore, not been exposed for a long time to any fresh source of poisoning. He had been treated for two months, very carefully but ineffectually, in the Middlesex Hospital, and among other means by "sulphur baths."

Professor Williamson undertook the examination of the urine for lead, in the Berkbech laboratory of University College. He was furnished with four specimens. 1. The urine of February 2d to 3d, no medicine having been given. 2. The urine of February 3d to 4th, no medicine having been given. 3. The urine of February 4th to 7th, seventy grains of iodide of potassium having been taken. 4. The urine of February 7th to 10th, ninety additional grains of iodide of potassium having been taken.

Lead was not detected in the first two specimens of urine, but it was found in the urine passed after the employment of the iodide of potassium.

The processes employed may be quoted: Equal portions of the urine, Nos. 1 and 2, were evaporated to dryness; the black mass which remained was calcined, and the fused mass was boiled with excess of chlorine water. This treatment was adopted in order to get evidence of lead from the insoluble sulphate. The solution with chlorine was tested carefully for lead, but none could be detected.

The portions Nos. 3 and 4 were treated as follows: About a pint of the urine was evaporated and the organic matter destroyed by aqua regia, and the remaining salt fused and boiled for some time in carbonate of soda. After having collected the precipitate and undissolved portion, it was well washed and then treated with dilute nitric acid. The filtered solution was tested for lead with sulphuretted hydrogen, and it yielded a black precipitate of sulphide of lead. From the sulphide of lead, from one of the urines, a distinct, though a very minute, globule of lead was obtained.

The quantities of lead present in the urines Nos. 3 and 4, seemed to be about equal, but too small for quantitative estimation.

The iodide of potassium was given in ten grain doses, and on an empty stomach, to prevent decomposition by acids—a change which appears to destroy half its power.

In order to complete our references to what has been written on this subject, I may mention a paper by J. W. Corson, M. D., one of the Physicians to the Bellevue Hospital, in the *New York Journal of Medicine*, for September, 1853, entitled "Cases Testing the Iodide of Potassium as an Antidote to the Injurious Effects of Mercury, and Corroborative of the Experiments of M. Melsens."

T. R. B.

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62. *Insurance upon Lives. Breasted and others* v. *The Farmers' Loan and Trust Company.*—This case, with the decision upon it by the Supreme Court of the State of New York, is given in my tenth edition, vol. i. p. 694.

It was carried up to the Court of Appeals, who have this year (1853) finally settled the matter. The following summary will explain the subject in dispute:—

It was an action brought by the plaintiffs, administrators of Hiram Comfort, deceased, to recover the amount of a policy of insurance upon his life, made by defendants.

The policy contained a provision, "that in case the said Hiram Comfort shall (without previous consent, &c.) enter into any military or naval service, in case he shall die by his own hands, or in consequence of a duel, or by the hands of justice, or in the known violation of any law of these States, or of the United States," &c., this policy shall be void. The defendants insisted that he died by his own hand, within the meaning of the policy.

The referees before whom the cause was tried reported "that the said assured threw himself into the Hudson River, from the steamboat Erie, while insane, for the purpose of drowning himself, not being mentally capable at the time of distinguishing between right and wrong."

The Supreme Court, on this report, gave judgment for the plaintiffs, and the judgment was affirmed by the Court of Appeals. T. R. B.

63. *On the Testing of the Metallic Spots deposited by Burning Hydrogen on Porcelain.* By H. WACKENRODER.—Our author has tried the method lately proposed by Slater, and makes the following observations on determining arsenic by separation from arseniuretted hydrogen:—

If the hydrogen gas produced by the action of diluted pure or ordinary purified sulphuric acid upon common zinc be kindled, and the strong current of gas directed against white earthenware, a black spot of lead will be produced by the reduction of the lead-glazing of the earthenware.

If a very strong current of hydrogen gas be developed, and no deposit of metal takes place from its flame upon porcelain, we may be perfectly sure of the purity of the gas.

But if muriatic acid be employed instead of sulphuric acid for the production, or if any chloride exists in the fluid used, metallic spots may be formed during the rapid evolutions of the gas, which, however, are only spots of zinc. They are distinguished in this manner, that, on pouring over them diluted muriatic acid, they rapidly disappear, and that they are also readily removed by means of hypochlorite of soda.

To avoid error, it is also necessary that no nitric acid or sulphuret be present in the apparatus used in the development of the gas, which may be best formed of a two-necked bottle, with a funnel-tube, and a tube bent at right angles and drawn to a point, for the passage of the gas. The nitrous acid formed in the one case readily decomposes antimoniuretted and arseniuretted hydrogen gas, whilst a sulphuret readily causes the formation of some sulphuretted hydrogen gas, by which the spots of arsenic and antimony receive more or less of a reddish or yellowish colour.

Granulated zinc, with dilute sulphuric acid, evolves hydrogen gas better than pieces of crystalline zinc. The evolution of gas, however, easily becomes so violent that it must be moderated by the addition of water. When it has gradually become weak, it may be remarkably enlivened, frequently even to a most violent degree, by the addition of a small quantity of a solution of arsenious or arsenic acid. This circumstance must therefore not be neglected in the employment of *Marsh's apparatus* in judicial investigations.

1. *Arsenical spots.* When sufficient hydrogen gas has been generated to expel the atmospheric air from the bottle, the fluid or substance (such, for instance, as a piece of green paper), which is to be examined for arsenic, is to be introduced into it. If there be a funnel-tube to the flask, the addition of small quantities of the liquid to be examined to the sulphuric acid employed to generate the gas, is readily effected by stopping the gas tube with the finger, so that as much acid rises into the funnel as it can hold. The arsenical spots produced on the porcelain are rapidly dissolved by pouring over them hypochlorite of soda, and the porcelain becomes perfectly clean; on the other hand, the spots do not disappear on having dilute muriatic acid poured over them. If the spots of arsenic be shining, and consequently proportionately thick, the hypochlorite is somewhat longer in effecting their solution, which, however, it always does in a period of not more than a few seconds.

2. *Antimonial spots.* If a little tartar emetic (or any other compound of antimony) be added to the mixture of zinc and sulphuric acid, antimoniuretted hydrogen is immediately given off with the hydrogen. Whilst the spots on the porcelain are still faint and of a dull appearance, they are acted upon, after some time, by hypochlorite of soda, in such a manner that they become gradually indistinct, rather by being washed off by the alcoholic fluid, than in consequence of becoming dissolved in it. But if the antimonial spots be black and shining, and consequently more firmly fixed on the porcelain, they completely withstand the action of both hypochlorite of soda and diluted muriatic acid, but are quickly dissolved by a mixture of two liquids.

3. *Arsenical spots containing antimony, and antimonial spots containing arsenic.* If any arsenical fluid containing antimony be introduced into the gas apparatus, the spots on the porcelain at first contain principally only arsenic, apparently in consequence of the antimony being less volatile; but if shining spots be produced on the porcelain, which contain more antimony, these resist the action of hypochlorite of soda in a greater or less degree, and are often only eaten away around the edges.

Small quantities of antimony in the arsenical spots render these more strong and more shining, but do not prevent their solution in hypochlorite of soda. The hypochlorite of soda may therefore be used with the greatest certainty in distinguishing purely asenical from purely antimonial spots, which indeed is the principal point in judicial investigations, but not in detecting a trace of antimony in arsenical spots; it also serves in some measure to detect traces of arsenic in antimonial spots. It might be possible, but probably useless in practice, to ascertain, by comparative investigations, the quantitative proportions of arsenic and antimony at which distinct differences occur in the behaviour of mixed metallic spots with hypochlorite of soda.—*Chemical Gazette*, August 2, 1852. T. R. B.

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64. *Manchineel Tree.*—"There is no authenticated statement on record that ever a human being died from sleeping under the manchineel tree."—*Literary Gazette* (London), 1853, p. 475. T. R. B.

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65. *Observations upon a General Method for detecting the Organic Alkaloids in Cases of Poisoning.* By Prof. Stas, of Brussels.—Whatever certain authors may have said on the subject, it is possible to discover in a suspected liquid all the alkaloids, in whatever state they may be. I am quite convinced that every chemist who has kept up his knowledge as to analysis, will not only succeed in detecting their presence, but even in determining the nature of that of bodies, the properties of which have been suitably studied. Thus he will be able to discover conia, nicotine, aniline, picoline, petinine, morphine, codeine, narcotine, strychnine, brucine, veratrine, colchicine, delphine, emetine, solanine, aconitine, atropine, and hyoscyamine. I do not pretend to say that the chemical study of all these alkaloids has been sufficiently well made to enable the experimenter who detects one of them to know it immediately, and affirm that it is such an alkaloid, and not such another. Nevertheless, in those even which he cannot positively determine or specify, he may be able to say that it belongs to such a family of vegetables—the Solanaceæ, for example. In a case of poisoning by such agents, even this will be of much importance. The method which I now propose for detecting the alkaloids in suspected matters, is nearly the same as that employed for extracting those bodies from the vegetables which contain them. The only difference consists in the manner of setting them free, and of presenting them to the action of solvents. We know that the alkaloids form acid salts, which are equally soluble in water and alcohol; we know also that a solution of these acid salts can be decomposed so that the base set at liberty remains either momentarily or permanently in solution in the liquid. *I have observed that all the solid and fixed alkaloids above enumerated, when maintained in a free state and in solution in a liquid, can be taken up by ether when this solvent is in sufficient quantity.* Thus, to extract an alkaloid from a suspected substance, the only problem to resolve consists in separating, by the aid of simple means, the foreign matters, and then to find a base which, in rendering

the alkaloid free, retains it in solution, in order that the ether may extract it from the liquid. Successive treatment by water and alcohol of different degrees of concentration, suffices for separating the foreign matters, and obtaining in a small bulk a solution in which the alkaloid can be found. The bicarbonates of potash or soda, or these alkalies in a caustic state, are convenient bases for setting the alkaloids at liberty, at the same time keeping them wholly in solution, especially if the alkaloids have been combined with an excess of tartaric or of oxalic acid.

To separate foreign substances, animal or otherwise, from the suspected matters, recourse is commonly had to the tribasic acetate of lead, and precipitating the lead afterwards by a current of sulphuretted hydrogen. As I have several times witnessed, this procedure has many and very serious inconveniences. In the first place, the tribasic acetate of lead, even when used in large excess, comes far short of precipitating all the foreign matters; secondly, the sulphuretted hydrogen, which is used to precipitate the lead, remains in combination with certain organic matters which undergo great changes by the action of the air and of even a moderate heat; so that animal liquids which have been precipitated by the tribasic acetate of lead, and from which the lead has been separated afterwards by hydrosulphuric acid, colour rapidly on exposure to the air, and exhale at the same time a putrid odour, which adheres firmly to the matters which we extract afterwards from these liquids. The use of a salt of lead presents another inconvenience, viz., the introduction of foreign metals into the suspected matters, so that that portion of the suspected substance is rendered unfit for testing for mineral substances. The successive and combined use of water and alcohol at different states of concentration, permits us to search for mineral substances, whatever be their nature, so that in this way nothing is compromised, which is of immense advantage when the analyst does not know what poison he is to look for.

It is hardly necessary to say, that in medico-legal researches for the alkaloids, we ought never to use animal charcoal for decolorizing the liquids, because we may lose all the alkaloid in the suspected matters. It is generally known that animal charcoal absorbs these substances at the same time that it fixes the colouring and odoriferous matters.[1]

The above observations do not proceed from speculative ideas only, but are the result of a pretty long series of experiments which I have several times employed for discovering these organic alkaloids. To put in practice the principles which I have thus explained, the following is the method in which I propose to set about such an analysis: I suppose that we wish to look for an alkaloid in the contents of the stomach or intestines; we commence by adding to these matters twice their weight of pure and very strong alcohol;[2] we add afterwards, according to the quantity and nature of the suspected matter, from ten to thirty grains of tartaric or oxalic acid—in preference tartaric; we introduce the mixture into a flask, and heat it to 160° or 170° Fahrenheit. After it has completely cooled it is to be filtered, the insoluble residue washed with strong alcohol, and the filtered liquid evaporated in vacuo. If the operator has not an air-pump, the liquid is to be exposed to a strong current of air at a temperature of not more than 90° Fahrenheit. If, after the volatilization of the alcohol, the residue contains fatty or other insoluble matters, the liquid is to be filtered a second time, and then the filtrate and washings of the filter evaporated

[1] [This is no doubt true; we must not use animal charcoal to decolorize, and then look for the alkaloid in the *liquid*, but we may use it, at least in the case of strychnia and some of the non-volatile alkaloids, to separate them, and then we look for them *in the charcoal*. See notice of Graham and Hofmann's Process for Detecting Strychnia, *Monthly Journal*, August, 1852, p. 140; *Pharmaceutical Journal*, vol. xi. p. 504, May, 1852.]

[2] When we wish to look for an alkaloid in the tissue of an organ, as the liver, heart, or lungs, we must first divide the organ into very small fragments, moisten the mass with pure strong alcohol, then express strongly, and by farther treatment with alcohol exhaust the tissue of everything soluble. The liquid so obtained, is to be treated in the same way as a mixture of suspected matter and alcohol.

in the air-pump till nearly dry. If we have no air-pump, it is to be placed under a bell-jar over a vessel containing concentrated sulphuric acid. We are then to treat the residue with cold anhydrous alcohol, taking care to exhaust the substance thoroughly; we evaporate the alcohol in the open air at the ordinary temperature, or, still better, in vacuo; we now dissolve the acid residue in the smallest possible quantity of water, and introduce the solution into a small test-tube, and add little by little pure powdered bicarbonate of soda or potash, till a fresh quantity produces no farther effervescence of carbonic acid. We then agitate the whole with four or five times its bulk of pure ether, and leave it to settle. When the ether swimming on the top is perfectly clear, then decant some of it into a capsule, and leave it in a *very dry place* to spontaneous evaporation.

Now, two orders of things may present themselves; either the alkaloid contained in the suspected matter is liquid and volatile, or solid and fixed. I shall now consider these two hypotheses.

Examination for a Liquid and Volatile Alkali.—We suppose there exists a liquid and volatile alkaloid. In such a case, by the evaporation of the ether, there remains in the inside of the capsule some small liquid striæ which fall to the bottom of the vessel. In this case, under the influence of the heat of the hand, the contents of the capsule exhale an odour, more or less disagreeable, which becomes, according to the nature of the alkaloid, more or less pungent, suffocating, irritant; it presents, in short, a smell like that of a volatile alkali masked by an animal odour. If we discover any traces of the presence of a volatile alkaloid, we add then to the contents of the vessel, from which we have decanted a small quantity of ether, one or two fluidrachms of a strong solution of caustic potash or soda, and agitate the mixture. After a sufficient time, we draw off the ether into a test-tube; we exhaust the mixture by two or three treatments with ether, and unite all the ethereal fluids. We pour afterwards into this ether, holding the alkaloid in solution, one or two drachms of water, acidulated with a fifth part of its weight of pure sulphuric acid, agitate it for some time, leave it to settle, pour off the ether swimming on the top, and wash the acid liquid at the bottom with a new quantity of ether. As the sulphates of ammonia, of nicotine, aniline, quinoleine, picoline, and petinine, are entirely insoluble in ether, the water acidulated with sulphuric acid contains the alkaloid in a small bulk, and in the state of a pure sulphate; but as the sulphate of conia is soluble in ether, the ether may contain a small quantity of this alkali, but the greater part remains in the acidulated watery solution. The ether, on the other hand, retains all the animal matters which it has taken from the alkaline solutions. If it, on spontaneous evaporation, leaves a small quantity of a feebly-coloured yellowish residue, of a repulsive animal odour, mixed with a certain quantity of sulphate of conine, this alkaloid exists in the suspected matter under analysis. To extract the alkaloid from the solution of the acid sulphate, we add to the latter an aqueous and concentrated solution of potash or caustic soda, and agitate and exhaust the mixture with pure ether; the ether dissolves ammonia, and the alkaloid is now free. We expose the ethereal solution at the lowest possible temperature to spontaneous evaporation; almost all the ammonia volatilizes with the ether, whilst the alkaloid remains as residue. To eliminate the last traces of ammonia, we place for a few minutes the vessel containing the alkaloid in a vacuum over sulphuric acid, and obtain the organic alkaloid with the chemical and physical characters which belong to it, and which it is now the chemist's duty to determine positively.

I applied, on the 3d of March, 1851, the process which I have described, to the detection of nicotine in the blood from the heart of a dog poisoned by two cubic centimetres [0.78 C.I.] of nicotine introduced into the œsophagus, and I was able in a most positive manner to determine the presence of nicotine in the blood. I was able to determine its physical characters; its odour, taste, and alkalinity. I succeeded in obtaining the chloro-platinate of the base perfectly crystallized in quadrilateral rhomboidal prisms of a rather dark yellow colour, and to ascertain their insolubility in alcohol and ether.

I have applied the same process for the detection of conia in a very old tincture of hemlock, which my friend and colleague M. de Hemptinne was so kind

as to put at my disposal; and I was equally successful in extracting from the liquid colourless conia, presenting all the physical and chemical properties of this alkali. I was also able to prove that the ether which holds conia in solution, carries off a notable portion of this alkaloid when the solvent is exposed to spontaneous evaporation.

Examination for a Solid and Fixed Alkaloid.—Let us now suppose that the alkali is solid and fixed; in that case, according to the nature of the alkali, it may happen that the evaporation of the ether resulting from the treatment of the acid matter, to which we have added bicarbonate of soda, may leave or not a residue, containing an alkaloid. If it does, we add a solution of caustic potash or soda to the liquid, and agitate it briskly with ether. This dissolves the vegetable alkaloid, now free and remaining in the solution of potash or soda. In either case, we exhaust the matter with ether. Whatever be the agent which has set the alkaloid free, whether it be the bicarbonate of soda or potash, or caustic soda or potash, it remains, by the evaporation of the ether, on the side of the capsule as a solid body, but more commonly a colourless milky liquid, holding solid matters in suspension. The odour of the substance is animal, disagreeable, but not pungent. It turns litmus paper permanently blue.

When we thus discover a solid alkaloid, the first thing to do is to try and obtain it in a crystalline state, so as to be able to determine its form. Put some drops of alcohol in the capsule which contains the alkaloid, and leave the solution to spontaneous evaporation. It is, however, very rare that the alkaloid obtained by the above process is pure enough to crystallize. Almost always it is soiled by foreign matters. To isolate these substances, some drops of water, feebly acidulated with sulphuric acid, are poured into the capsule, and then moved over its surface, so as to bring it in contact with the matter in the capsule. Generally we observe that the acid water does not moisten the sides of the vessel. The matter which is contained in it separates into two parts, one formed of greasy matter, which remains adherent to the sides—the other alkaline, which dissolves and forms an acid sulphate. We cautiously decant the acid liquid, which ought to be limpid and colourless, if the process has been well executed; the capsule is well washed with some drops of acidulated water, added to the first liquid, and the whole is evaporated to three-fourths in vacuo, or under a bell-jar over sulphuric acid. We put into the residue a very concentrated solution of pure carbonate of potash, and treat the whole liquid with absolute alcohol. This dissolves the alkaloid, while it leaves untouched the sulphate of potash and excess of carbonate of potash. The evaporation of the alcoholic solution gives us the alkaloid in crystals.

It is now the chemist's business to determine its properties, to be able to prove its individuality. I have applied the principles which I have just expounded to the detection of morphine, iodine, strychnine, brucine, veratrine, emetine, colchicine, aconitine, atropine, hyoscyamine—and I have succeeded in isolating, without the least difficulty, these different alkalies, previously mixed with foreign matters.

I have thus been able to extract, by this process, morphine from opium, strychnine and brucine from nux vomica, veratrine from extract of veratrum, emetine from extract of ipecacuanha, colchicine from tincture of colchicum, aconitine from an aqueous extract of aconite, hyoscyamine from a very old extract of henbane, and atropine from an equally old tincture of belladonna. Thus it is in all confidence that I submit this process to the consideration of chemists who undertake medico-legal researches.—*American Journal of Pharmacy*, January, 1853, from *Bulletin de l'Académie Royale de Médecine de Belgique*, tom. vi. No. 2; *Edinburgh Monthly Journal of Medical Science, and Pharm. Journ.*

T. R. B.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On the Polytrichum Juniperinum as a Diuretic. By WILLIAM WOOD, M. D., of East Windsor-Hill, Connecticut.—Having been in the habit of using a plant in my practice which is, I believe, wholly unknown to the medical profession as possessing any medicinal properties, and believing it to be far superior to any diuretic known, I am induced to give a brief botanical description of it, with a few marked cases in which it was useful. The plant grows very abundantly in New England, and I know not but that it may be found elsewhere. My method of using it has been, to gather a generous handful of the *whole* plant while on the way to see my patients, and order it to be steeped and drank freely, the more so the better. I have never seen an unpleasant symptom arise from it, although I have used twice the above-named quantity in twenty-four hours.

Series. Cryptogamia. *Nat. Order.* Musci. *Genus.* Polytrichum. Calypta apparently formed of hair or fibres of flax. Capsule 4-sided, nodding in old fruit. Peristome single, 64 teeth. Flowers diœcious; sterile flowers cup-shaped, terminal.

First species, *Juniperinum* (Hedwig), stems generally simple; pedicle supporting the capsule, smooth, wiry, two-third inches in height from the top of the plant; leaves entire; capsule oblong, about the size of a grain of wheat, surmounted by a beaked lid which falls from the old fruit, exposing the smooth dilated apex of the columella.

Second species, *Commune* (Linn.), differs from the foregoing by being taller, and having serrate leaves; found often with the former, generally growing in damp places; possesses probably the same medicinal properties. Common name, Hair-cap Moss, and Robbin's Rye.

CASE I. Miss O., in the winter of 1847 and 1848, had a severe attack of typhoid pneumonia, and, while convalescing, her kidneys ceased to perform their proper function. This was followed by anasarca, the œdema commencing in the lower extremities and increasing very rapidly. The legs became enormously enlarged, to more than twice their natural size, presenting the appearance of polished marble, and so sensitive as not to be able to bear the least touch. After a few days, this was followed by ascites, respiration became very difficult, so much so that I was summoned to the patient's bed three times in twenty-four hours with the message that she was dying; pulse 140–150 a minute. I had been using diuretics, alteratives, frictions, counter-irritants, and tonics, as the symptoms had indicated, but all to little or no purpose. At this stage of the disease, Dr. Watson was called in consultation, and pronounced it a hopeless case, saying that she could not live twenty-four hours. For the nine days previous, she had been elevated to nearly the sitting posture, as it was impossible for her to breathe lying down, and, during this time, her position had not been changed, as the least motion produced dyspnœa to an alarming degree. I now administered polytrichum freely (for the first time in my practice), without any fear of doing injury, as I believed that no medication could save, or even prolong life many hours. In

twelve hours called again; found her passing urine freely (or, as the nurse said, by the pailful), which afforded her great relief. Twenty-four hours from the time the polytrichum was first administered, the skin on her limbs could be laid in folds. The case after this improved gradually under the use of tonics, stimulants, &c., without any return of the dropsical effusion.

Case II. Miss A., 1848, had been troubled with ascites for more than twelve years; had consulted the physicians in Hartford and its vicinity, and had been under the care of at least as many M. D.'s as she had years been troubled, not only without any permanent amelioration of symptoms, but with a gradual increase of disease. The ascites had been ascribed to hepatic derangement, for which mercurials had been freely administered; salivation had been the result. She had become so susceptible to the influence of mercurials, that one-eighth of a grain of calomel would salivate her. When I saw her, the dropsical effusion extended over her lower limbs, abdomen, and chest; pulse 120 a minute; respiration difficult; urine little in quantity and high-coloured, with a brick-coloured sediment. I gave her freely of the above-named article. In forty-eight hours her dropsy had almost wholly disappeared; she has had but one slight return of the disease since, and that was induced by a severe attack of dysentery.

Case III. Mrs. N., from New York city, 1850, had for years been troubled with scantiness of urine and consequent œdema; had generally gained some relief from medicine; but, as she remarked, "had derived no benefit of late, because she had worn her medicines out." I gave her polytrichum; saw her next day, and learned of her that she had had occasion to urinate sixteen times during the night. On her return to New York, she took a supply of the article with her; saw her in New York three months after, and at that time there had been no return of symptoms to require the medicine again.

Case IV. Mr. H., of Hartford, 1853, had been unwell for six months; had been troubled with hepatic difficulties, bleeding from the lungs, œdema, very little urine, and sometimes scarcely none at all for several days. His father, hearing that I had been successful in the treatment of some obstinate cases of dropsy, applied to me for medicine for that purpose. He informed me that the best medical skill Hartford afforded could not give the least relief to his son for his dropsy; that he could not get on his trowsers or stockings. I gave him some polytrichum; did not see him for three weeks, when the young man himself rode up to see me, eight miles, with not only his trowsers and stockings on, but also his boots. Mr. H. said: "In half an hour after taking the above medicine, he began to pass water freely, and his dropsical symptoms immediately subsided." I gathered him a supply of the article when here, but have recently learned that he has had no occasion to use it, as there has been no return of the dropsy since, although three months have elapsed, and his other symptoms continue unabated.

I could give a long list of cases equally as striking, if necessary.

East Windsor Hill, *October* 12, 1853.

Fatal Hemorrhage from the Bowels in a New-born Infant. By G. R. Henry, M. D., of Burlington, Iowa.—On the night of Sunday, 16th of October, I was called to attend Mrs. Y., of this city, in her eighth or ninth confinement; labour was easy and natural, no difficulty of any kind, except from an attached placenta, requiring the introduction of the hand for its removal. The child was small but vigorous, but had a wrinkled and rather *old* appearance, which excited my apprehension that all was not right with it; it, how-

ever, seemed to be doing well, but as its bowels had been very slightly moved, on Tuesday morning a dose of olive-oil was administered; this brought away the ordinary fecal discharges, and the child remained comfortable until about eleven o'clock P. M., when there was a gush of blood from the bowels, soon followed by a second. I saw it between one and two o'clock Wednesday morning, and just as I entered the room it had a third discharge, which was so profuse that it saturated the clothes of the child and ran through upon the lap of the nurse; there was at least a quarter of a pint of clear blood, unmixed with any fecal or other matter. The child's pulse was very feeble, and I thought it would die soon. I ordered a saturnine injection, expecting to find the child dead in the morning. The discharges were slightly diminished, but still continued, and I found the child at eight o'clock in the morning, in apparently the same condition as when I left it. I then ordered an emulsion of turpentine to be given and continued through the day, which brought away two fecal discharges, and the bleeding ceased; but it commenced again in about four hours with fresh vigour, and continued until about seven o'clock Thursday morning, when the child died. The amount of blood lost was variously estimated; I think there was at least a quart poured out, this being below the estimate of any one present.

At two o'clock Thursday, I made an autopsy in presence of some half dozen physicians of this place. The examination was confined to the abdomen. The stomach, liver, and spleen were healthy, and in their normal position; the circulation through these organs was unimpeded; the duodenum was also healthy and filled with bile; the lower part of the jejunum was filled with blood; the mucous membrane had a very much injected and ecchymosed appearance; the ileum was like it, throughout its whole extent, except two or three contracted portions, from one to three inches in extent, which were empty, and there the mucous membrane was healthy; the cæcum, colon, and rectum were filled with blood, and the mucous membrane presented the same injected appearance, which could not be washed away, or rubbed off. The *appendix vermiformis* was large, and was filled with a coagulum of blood.

There was no rupture of any vessel, and no malformation of any part; the mucous membrane of almost the entire bowel was the seat of the hemorrhage, which seemed to have proceeded from it by the process of exhalation. I was surprised that the child lasted so long, under so great and continued a drain of the vital fluid; I should again be at a loss as to what treatment to adopt with any hope of success in a similar case.

There was no bleeding from any other part of the body; the child nursed well until an hour or two before its death. I have no means of accounting for the occurrence of the hemorrhage, unless it was a tendency to dysentery (which was very rife here), so strong as to break up the bloodvessels in the fragile tissue of so young a child.

BURLINGTON, IOWA, *October* 31, 1853.

Unusual Quantity of Liquor Amnii, or Dropsy of the Amnion, with Fœtal Ascites. By C. R. PARKE, M. D., of Bloomington, Illinois.—On the evening of the 3d of this month I was called to see Mrs. P., said to be in labour (she was under the care of a homœopathist). The following is the history of the case as I learned it from herself: Her menstrual discharges had ceased the third week in April last; she enjoyed her usual good health until about the first of October, when she felt more or less pain in her left side in the region of the liver, which continued to increase in severity in proportion to the enlargement of the uterus. About one week previous to labour,

anasarca of the lower extremities was visible. She was much larger than she ever had been, even at the full period of gestation. Three days before delivery, she was troubled with dyspnœa when in the recumbent position. All the common external applications had been made to relieve pain, in conjunction, I suppose, with a few *small pills*, but to no purpose.

She had a few slight pains before I arrived, and the usual quantity of liquor amnii had been discharged. I made an examination, and found the child in the third position; however, a *very strong pain* making its appearance, the head was delivered without much difficulty. The pain continued with powerful tonic contractions, but it seemed to no purpose. I brought down the arms, and still complete delivery did not take place. I was at a loss to know the cause of this retention, and concluded to make gentle traction. I did so, and in a few minutes the child was born, when near a *common pailful* of water was discharged at one gush, running over the side of the bed and down upon the floor. In about fifteen minutes the placenta was discharged, since when she has been doing well, not even having an after-pain.

The cause of the difficulty of the expulsion of the child was *ascites*, there being near one gallon of *bloody serum* within the abdominal cavity. The child made several efforts to breathe, in which I attempted to assist it by all the ordinary means, but the diaphragm being so pressed against the lungs by the fluid in the abdominal cavity, it was impossible to fill the lungs with air. We then concluded to tap the abdomen and draw off the fluid—this we did, but to no purpose; the child died.

A *post-mortem* examination was made of the child; we could not detect any disease or malformation, every organ being in a healthy condition; the liver was unusually large, but apparently healthy.

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Labour complicated by Monstrosity. By G. W. Patrick, M. D., of Terre Haute, Indiana.—I was called to see Mrs. C., aged seventeen, on Friday evening at six o'clock, who had some symptoms of approaching labour. Her pains were irregular and inefficient. I gave her an anodyne, and concluded to remain all night, having had some anxiety in her behalf from the enormous distension of the abdomen. The pains were quieted by the anodyne, and I left her on Saturday morning quite comfortable; but I was called again at six o'clock of that evening. Labour was then advancing; the mouth of the womb was open the size of a half dollar, and the head could be felt in a favourable position.

At nine o'clock labour-pains were severe, but the head advanced very slowly. I now discovered a disposition in the case to be converted into a face-presentation. I used every effort to push up the brow and allow the occiput to descend; but the back of the head was entirely immovable. Things went on in this way until near morning; the face gradually descending, but no advance of the vertex. At about four o'clock in the morning there was no farther advance of the head; the forehead was presenting at the outlet of the pelvis. The patient now was becoming incoherent in her expressions and not seeming to suffer from her pains, which were very strong. I was about making preparations to bleed, when she was seized with a convulsion. I immediately dispatched a messenger for consultation, and as soon as the convulsion subsided endeavoured to extract blood, but could only succeed in getting about an ounce. Dr. Read soon arrived; previous to which the patient had had three convulsions, and in the intervals was entirely unconscious, her pains, however, continuing quite strong. Several other efforts were made to draw blood, but without effect.

The head was so firmly wedged in the pelvis that it was impracticable to apply forceps; we therefore concluded to open the head, which we succeeded in doing at the anterior fontanelle. On emptying the cranium the head was brought a little farther down, but it was now discovered that something was attached to the back of the head which prevented farther descent. We succeeded in applying a blunt-hook to the nape of the neck, and by seizing a firm portion of the skull with a long pair of tooth-forceps, we made strong traction at each return of pain. We now found that the whole mass was coming away, which was effected at about six o'clock in the morning. For half an hour after delivery was effected, the patient lay perfectly quiet, and we were beginning to have some hopes that the convulsion would not return; but in this we were disappointed, as they soon commenced and continued as often as once in every fifteen minutes until five o'clock in the evening, when she expired, never having been conscious from the first paroxysm.

The fœtus was well formed. There was a tumour attached to the occipital bone by a pedicle about an inch in diameter; this was separated from the child and retained for farther examination, when it proved to be an attempt at a second head; it was of a soft pulpy feel; when the child was held in an upright position, the tumour reached to the hips. Upon cutting into it, it was found to contain well formed cerebral substance, with detached lamella of bone. In the centre was about a pint of dark grumous blood. The tumour weighed three and a half pounds, the fœtus ten pounds, and a placenta that weighed four pounds, making a combined weight of nearly eighteen pounds; and when to this was added a large quantity of liquor amnii, it constituted an ovum of enormous size, especially as the mother was quite small and of very slender make.

Every effort was made to control the convulsions, with the exception of chloroform; this was forbidden by the husband. I had procured the article, and was about commencing its administration, and was much pleased with its effects, when I was compelled to desist, as above said.

On Retention of Urine in Children; and on Painful Distension of Vagina after Birth of the Child. By ROBERT S. BAILEY, M. D., of Charleston, South Carolina.

DEAR SIR: Having noticed in the last number of the *American Journal of the Medical Sciences*, two cases of retention of urine in children by Dr. John Toler, and also a few remarks on painful distension of the vagina, after the birth of the child, by Dr. Leopold, I send you some brief notes from my case-book by way of farther illustration, should you think them worthy of an insertion in your valuable journal.

The cases communicated by Dr. John Toler are interesting as arising from a cause that may be overlooked, more particularly in very young children. Dr. Toler's patients were twelve and thirteen years of age. In the following cases, the patients were much younger:—

CASE I. August 24, 1847, was sent for to visit a child aged three months. The nurse informed me that, on passing urine, something like a fish's bladder protruded, which caused some obstruction. On examination, I found the cause was not congenital, but appeared to arise from excoriation of the labiæ, which had caused them to cohere. A probe was introduced and carried in a direction downwards as far as the frænum. I was, however, shortly after summoned again to see the little patient, as no relief had been obtained. I now found that the orifice of the urethra was covered by the same thin membrane. I directed the probe upwards, which effectually relieved the patient;

the parts were directed to be kept open for a few days by the introduction of a piece of lint or linen rag smeared with sweet-oil.

Case II. August 26, 1847, was called upon to see a child aged one year; the cause was precisely the same as the preceding one, but only observed for the first time this morning. No cause could be assigned for its production; no inconvenience appeared to be produced. A probe was introduced from above downwards the whole length of the vagina, with relief.

Case III. May 10, 1850, visited a child aged two years; has had for some time difficulty in micturition, and, on examination, found a closure of the labia, with the exception of one very small orifice for the discharge of the urine. A probe was introduced through the orifice, and the parts divided downwards; little or no hemorrhage; the patient experienced immediate relief.

It may be proper to remark that the first case I ever witnessed of this kind was many years ago, when a student at the London Hospital. The patient, a child, was exhibited before the class, and a probe introduced by Mr. Thomas Blizard; he observed that the cohesion was commonly so slight that the scalpel was not necessary; should, however, any portion of the membrane be so thick as to form a band across the vagina and cause pain or difficulty in the operation, I should prefer the scissors.

Dr. Leopold mentions painful distension of the vagina as arising from accumulated coagula, or a very large placenta. It would, however, appear from the following case, which occurred in my practice, that it may be produced from malformation of the funis:—

March 2, 1823, was sent for in the evening a distance of nine miles to visit Mrs. F.; I was informed that she had been delivered by a midwife since five o'clock P. M., but that the placenta could not be brought away; after waiting some time, and making ineffectual efforts to draw it away by the funis, I took hold of the funis with one hand and introduced the other into the vagina to the placenta, and by gently drawing down with both hands (yet with a considerable degree of force), I succeeded in extracting it. On examination, the placenta appeared larger than ordinary, and the funis divided into two branches about three inches previous to entering the placenta, and about the same distance between each insertion, resembling in shape the letter Y.

It is evident that if traction is made in the axis of the pelvis, or directly downwards, as commonly directed, it would not succeed in such a case.

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Fracture and Dislocation of the Humerus of a Fœtus in Utero. By Aristide Rodrigue, M. D., of Hollidaysburg, Penn. (Communicated in a letter to the editor.)—I must give you a case of fracture and dislocation of left arm of a child in utero. The woman, when about four months gone with child, fell on her left side, striking a board, and felt herself much hurt at the time; at the full period she was delivered of a full grown large boy, with the following deformity: Dislocation of the humerus in the axilla, fracture of both bones of forearm of left side, lower third. Dislocation could not be reduced; union of the bones of forearm by ossific matter complete; bones passing each other, and hand at an angle of about forty degrees; the child did well otherwise; the boy is now four years old, strong and hearty; humerus has grown nearly apace with the other; forearm has not, and remains short and deformed as at birth; the hand is of the same size with that of the sound side.

Extract of Nux Vomica in Typhoid and Congestive Fevers, Diarrhœa, and Cholera Infantum. By ARISTIDE RODRIGUE, M. D., of Hollidaysburg, Penn. (Extracted from a letter to the editor.)—Permit me to communicate to you the very successful administration of nux vomica in large doses in low stages of typhoid and congestive fevers. Where the cerebral symptoms are alarming, such as drowsiness, stupor, and coma, I give from ¼ to ½ grain every half or one hour, until some evidences of the medicine could be observed, or the patient improve. Where patients are sinking, and you find stimulants and tonics unavailing, unless there are organic lesions to prevent recovery, I have the fullest confidence this remedy will prevent a patient from sinking prematurely. In combination with spts. ether. nit. it relieves the subsultus, which is so common and vexatious. For a long time I have been using this medicine in diarrhœa, and those cases when large and frequent watery discharges from the bowels exhaust the patient rapidly. In cholera infantum it is of singular efficacy with me. Not being aware of the use of nux vomica in these fevers, I have taken the liberty to write to you, in hopes it may be of service to others.

Cholera infantum is a common disease in the country; in our towns, mountain tops, and valleys, it attacks a great number of children, and the mortality is sometimes very great. I am anxious to make and collect some observations respecting it, among which are the following:—

Have you ever known cholera infantum to attack a child twice?

Do you not make a *marked* distinction between ordinary diarrhœa, common cholera morbus, and cholera infantum of children?

Have you observed an eruption of pimples, or anything else, as an usual attendant upon cholera infantum?

Do not children, once cured of the disease, again exposed to all the supposed exciting causes, particularly in the cities, seem to remain well, even in the summer months?

DOMESTIC SUMMARY.

What Amount of Skill a Physician must have.—The following opinions, delivered by Judges Woodward, Black, and Lewis, in reference to the subject of skill in a physician or surgeon, in attending a patient, to free him from the charge of malpractice, should he fail to effect a cure, will be read with interest. They are of more than ordinary importance, and, it will be seen, overturn the law of the court below.

Dr. Alexander G. McCandless *vs.* James McWha—Error to Common Pleas of Beaver County.—Woodward, J.—This was an action on the case by the defendant in error against the plaintiff in error, a respectable physician and surgeon, for malpractice in setting a broken leg of the plaintiff, and the only question of any importance, presented for our consideration, is whether the court erred in charging "that the defendant was bound to bring to his aid the skill necessary for a surgeon to set the leg so as to make it straight, and of equal length of the other when healed; and, if he did not, he was accountable for damages, just as a stonemason or bricklayer would be, in building a wall of poor materials and the wall fell down; or, if they built a chimney, and it should smoke by reason of a want of skill in its construction.

It is impossible to sustain this proposition. It is not true in the abstract, and if it were, it was inapplicable to the circumstances of the case under investigation. The implied contract of a physician or surgeon is not to cure—to

restore a fractured limb to its natural perfectness—but to treat the case with diligence and skill. The fracture may be so complicated that no skill vouchsafed to man can restore original straightness and length, or the patient may, by wilful disregard of the surgeon's directions, impair the effect of the best conceived measures. He deals not with insensate matter, like the stonemason or bricklayer, who can choose their materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquillize, and a *will* to regulate and control. The evidence before us marks this strong distinction between surgery and masonry, and shows how the Judge's inapt illustration was calculated to lead away the jury from the true point of the cause.

Dr. Duncan describes the fracture as an oblique comminuted one, of the *tibia* and *fibula* of the leg, about half way between the ankle and the knee, and he says that, on one occasion, when he was present at a dressing of the limb, he heard Dr. McCandless complain that McWha had loosened the bandages, and he told him that if he loosed them, his leg might be shortened, but McWha justified his act because his leg was painful. Now upon such a state of facts, the question was, not whether the Doctor had brought to the case skill enough to make the leg as straight and long as the other, but whether he had employed such reasonable skill and diligence as are ordinarily exercised in his profession. For less than this he is responsible in damages, but if he be held to the measure laid down by the court below, the implied contract amounts, on his part, to a *warranty of cure*, for which there is no authority in law. In a fracture like this, a shortening of the limb is sometimes an inevitable consequence. Dr. Dorsey, in his *Elements of Surgery*, speaking of broken legs below the knee, says: "The fracture of both bones is most frequent—it may be transverse or oblique, simple or compound, comminuted or single. The fragments are occasionally displaced in every direction. In transverse fractures there is generally no shortening of the limb, but in those which are oblique, the leg is generally shortened." And from *Fergusson's System of Practical Surgery*, cited in the argument, we learn that the fissure in the tibia may be oblique, and the fragments, two or more, may have a constant tendency to become displaced—there may be great irritability of the muscles, particularly during the early part of the treatment—great restlessness of the patient, or unwillingness to submit to the requisite confinement; in short, a vast variety of circumstances likely to cause difficulty in the treatment. Not to multiply authorities, these are sufficient to show that the rule prescribed by the court is too rigid for this class of cases—that shortening of the leg may result from the most careful and approved practice, or from the misconduct of the patient. Nothing can be more clear than that it is the duty of the patient to co-operate with his professional adviser, and to conform to the necessary prescriptions, but if he will not, or under the pressure of pain cannot, his neglect is his own wrong or misfortune, for which he has no right to hold his surgeon responsible. No man may take advantage of his own wrong, or charge his misfortunes to the account of another.

We do not mean to intimate an opinion that this case was properly treated, or that the leg could not have been restored to the length of its fellow, but in view of the diversified circumstances that attend cases of this sort, it was very important that the true rule of professional responsibility should have been given to the jury, with instructions that they should inquire from all the facts in proof whether the defendant had come up to it, or stopped short of it.

We have stated the rule to be reasonable skill and diligence, by which we mean such as thoroughly educated surgeons ordinarily employ. If more than this is expected, it must be expressly stipulated for, but this much every patient has a right to demand in virtue of the implied contract which results from intrusting his case to a person holding himself out to the world as qualified to practise this important profession. If a patient applies to a man of *different occupation* or employment for his assistance, who either does not exert his skill, or administers improper remedies to the best of his ability, such person is not liable in damages; but if he applies to a *surgeon*, and he treats him improperly,

he is liable to an action, even though he undertook gratis to attend the patient, because his situation implies skill in surgery. Per Heath, J. in Shields *v.* Blackburn, 1 *Hen. Blac.* 161; Seare *v.* Prentice, 8 *East*, 348.

The principle is contained in the pithy saying of Fitzherbert, that it is the duty of every artificer to exercise his art rightly and truly, as he ought. This is peculiarly the duty of professional practitioners, to whom the highest interests of man are often necessarily intrusted. The law has no allowance for quackery. It demands *qualification* in the profession practised—not extraordinary skill, such as belongs only to a few men of rare genius and endowments, but that degree which ordinarily characterizes the profession. And in judging of this degree of skill, in a given case, regard is to be had to the advanced state of the profession at the time. Discoveries in the natural sciences for the last half century have exerted a sensible influence on all of the learned professions, but especially on that of medicine, whose circle of truths has been relatively much enlarged. And, beside, there has been a positive progress in that profession, resulting from the studies, the experiments, and the diversified practice of its professors. The patient is entitled to the benefit of these increased lights. The physician or surgeon who assumes to exercise the healing art, is bound to be up to the improvements of the day. The standard of ordinary skill is on the advance, and he who would not be found wanting, must apply himself with all diligence to the most accredited sources of knowledge.

If, in view of the principles here stated, Dr. McCandless should be found, on retrial, to have performed his whole duty to his patient, and that any defects in the limb are due to the patient's fault, or to the peculiarities of the fracture, there ought to be no recovery in damages. But if the blemish be fairly attributable to professional negligence, the jury should assess the damages.

The only remaining error assigned is scarcely worthy of notice. The action depended so entirely on its own circumstances, that the observation of the court as to the policy of such suits was irrelevant, and we may fairly presume harmless. But for misdirection on the other point, the judgment is reversed, and a *venire de novo awarded.*

McCandless *vs.* McWha—Black.—We all concur in the law of this case. The Judge, in his charge, fell into an error in stating the amount of skill required in the treatment of this case. We reverse for that reason. But when we decide the legal point we are done with it. We are not authority on questions of surgery. Our hands are abundantly full of questions which belong to our own profession, without volunteering opinions on sciences which relate to others. I think it necessary to say this, in order to prevent the court below, on second trial, from supposing that we intend to give them any instructions on matters in which we have no jurisdiction.

McCandless *vs.* McWha—Lewis, J.—Without dissenting from the able opinion of Mr. Justice Woodward, I make the following additional remarks. The case is peculiar, and relates to matters of such general interest as to justify this course. The court below charged the jury, that "the defendant was bound to bring to his aid the skill necessary for a surgeon to set the leg so as to make it straight, and of equal length with the other when healed; and, if he did not, he was accountable in damages, just as a stonemason or bricklayer would be in building a wall of poor materials, and the wall fell down; or, if they built a chimney, and it would smoke by reason of a want of skill in its construction." This is the error complained of, and it seems to be thought that the court, in giving this instruction, held the surgeon bound, under all circumstances, to cure the fractured leg so as to "make it straight and of equal length with the other when healed." I do not so understand the language of the Judge. He only held the surgeon bound to "*bring to his aid*" the skill necessary for the purpose. If the fracture in question was one which might have been restored by the exercise of ordinary skill, there was no error in requiring its exercise from one who held himself out as possessing it, and received compensation for his services in consequence of his represented professional ability. This brings us to the question: Was the injury one which might have been cured by the exercise of ordinary surgical skill? To decide this question we must have a

description of the fracture. The evidence given has not been brought up by the bill of exceptions, and the defendant in error objects to that part of it which has been inserted in the paper-book, without being certified as correct. The only testimony presented for consideration here by the plaintiff in error is the deposition of Dr. Duncan, who was his student at the time of the injury, and visited the patient in company with his preceptor after the first visit of the latter. This witness describes the injury to be "an oblique comminuted fracture of the *tibia and fibula*, nearly half way from the ankle to the knee, or thereabouts;" and informs us, in speaking of the treatment of it by Dr. McCandless, that "there were splints on the fore and back parts of the leg, reaching from the ankle to the knee, to keep up extension and counter-extension." Doctor McCandless, on this visit, complained that the patient had "disturbed the bandages and dressing *by loosing them*;" and the patient "defended the act *of loosing the bandages*, because the leg was painful." The witness farther states that the leg, at this time, was "considerably swollen."

We have no precise account of the manner in which the splints were secured, so as to "keep up the extension and counter-extension," for which the witness tells us they were designed. I am unable to comprehend how splints "reaching only from the knee to the ankle," could be applied to such a purpose without manifest danger of injury by means of the attachments which would be necessary to produce the result. *Extension*, as used among surgeons, is the force exerted on the lower fragment, in order to bring its superior extremity lower than the inferior extremity of the superior fractured portion; and *counter-extension* is a resisting force which prevents the whole limb, or even the body, from obeying the force of extension. The attachment, by means of a circular bandage at the ankle, for the purpose of extension, and that at the knee, for the purpose of counter-extension, would tend to impede the circulation, particularly the venous return (which ought not to be obstructed), and would irritate the parts so as to produce great pain and probable injury. Professor Boyer, in his lectures on diseases of the bones, recommends that the splints should be long enough to extend from the knee to *a short distance beyond the sole of the foot*, and that they should rest perpendicularly on their edges, and a third splint on the anterior portion of the leg. Professor Miller, in his *Principles of Surgery*, states that the splints should "*invariably* be of sufficient length to *command the neighbouring joints*, otherwise, by rotation, redisplacement will certainly take place." Dr. Hutchinson recommends splints extending from the knee *six or eight inches below the sole of the foot*, so as to dispense with irritating attachments at the ankle. But Professor Dorsey, whose skill and experience entitle his opinion to great respect, in his work on surgery, informs us that even Hutchinson's convenient method is found to produce great irritation, and to cause the leg to swell from the pressure of the circular bandages; and that, when this happens, in oblique fractures of the leg (such as the case in question), *the long splint of Desanet must be substituted*, and the *counter-extension made at the pelvis*, in the same manner as in the case of a fractured thigh, except that the leg must be dressed with the bandage of strips." In fractures of the thigh, permanent extension is usually effected by means of a long splint, acted on by a band attached to its upper extremity, and passed over the perineum, by the tightening of which the splint and the limb are pushed steadily downwards. By the addition of a shorter splint, but long enough, nevertheless, to extend from the perineum to six or eight inches beyond the sole of the foot, united at the lower extremity to the long splint by means of a crosspiece, the extending force could be applied to the ankle by attachments to the crosspiece, in such manner as to avoid irritation or other injury. But according to the opinion of eminent surgeons, "a short splint, extending a little above and below the fracture only, is not only an absurdity, but a mischievous absurdity."—*Miller's Prin. Surgery*, 506. Entertaining these views of the case, I am bound to say that the plaintiff in error has failed to satisfy me, either upon philosophical principles, or by surgical authority, that the means made use of for the purpose of producing "extension and counter-extension," were adequate or even proper for the purpose. If this was a case in which such extension by artificial means was not required, the mere

want of adaptation of the means to that end would be immaterial. But we must remember that the fracture was oblique, not transverse—that it was comminuted—that is, the bones were broken not only at one point but many—and, that both the *tibia* and *fibula* were thus fractured. Under these circumstances, in preventing the shortening of the limb by the contraction of the muscles, no reliance could be placed upon the bones thus broken into fragments. The necessity of supplying the place of these natural splints, by artificial means, must, therefore, have been manifest to a surgeon of ordinary skill in his profession. But in addition to the application of means not sufficient to produce the result which was indispensable to a proper restoration of the leg, there is reason to believe, judging solely from the imperfect view of the evidence presented by the plaintiff in error himself, that the short splints were applied by attachments above and below the fracture, so as to impede the circulation—to irritate the parts, to cause the limb to be "considerably swollen" and to produce so much pain that the patient, notwithstanding the strong motive which he had to submit to any treatment likely to effect a perfect recovery, "loosed the bandages, because the leg was painful." If this was the case, whatever may be thought of the propriety of the original application of these means of extension, their continuance, and the neglect to adopt others less liable to objection, was *prima facie* evidence of a want of surgical skill, and, if not explained to the satisfaction of the jury, the defendant below ought to answer in damages for the injury.

A patient is bound to submit to such treatment as his surgeon prescribes, provided the treatment be such as a surgeon of ordinary skill would adopt or sanction. But, if it be painful, injurious, and unskilful, he is not bound to peril his health, and perhaps his life, by submission to it. It follows that, before the surgeon can shift the responsibility from himself to the patient, on the ground that the latter did not submit to the course recommended, it must be shown that the prescriptions were proper, and adapted to the end in view. It is incumbent on the surgeon to satisfy the jury on this point, and, in doing so, he has the right to call to his aid the science and experience of his professional brethren. It will not do to cover his own want of skill by raising a mist out of the refractory disposition of the patient.

The intemperate habits of the patient are also relied upon here. But this furnishes no excuse for the want of skill in the surgeon. On the contrary, it was a circumstance calculated to admonish him that the case called for more skill and care than cases of less difficulty demand. We are, therefore, brought back to the main questions in the cause.

1. Did the surgeon exercise ordinary skill and care in his treatment of the patient? If he did, he is not liable. If he did not, he is.

2. Was the injury one which, under all the circumstances, might have been perfectly cured by ordinary surgical skill and care? If it was, and the surgeon failed in his duty in this respect, the damages ought, at least, to be commensurate with the injury. If the injured leg was not susceptible of a more perfect restoration, the surgeon would nevertheless be liable for any unnecessary pain or delay occasioned by the application of unskilful and improper remedies.

Although the error assigned may not be fully sustained, we have nevertheless a right, in our discretion, to reverse for an error not assigned, if it is believed to involve an important principle, or to affect the justice of the case. In the charge, the court told the jury in substance, that the surgeon was bound to bring to his aid the skill necessary to effect a perfect restoration of the leg. The propriety of this instruction depended upon the question whether the injury was one which, under all circumstances, a surgeon of ordinary skill might have perfectly cured. This was a question of *fact* which should have been submitted to the jury. Plain as the question may seem, it is not a matter of *law*, the decision of which can be taken from them and assumed by the court. There was, therefore, error in giving the peremptory and unqualified direction which withdrew this part of the case from the jury. But there are errors of omission as well as those of commission. When the judge spoke of the obligations of the surgeon to bring to his aid the necessary skill, he ought to have enforced the correlative duties of the patient to submit to all the skilful and proper require-

ments of his professional attendant. When the jury were told, in effect, that the defendant was liable if he failed to exercise the skill necessary to a perfect restoration of the leg, they ought also to have been informed that if he exercised ordinary skill and care, he is not responsible for the disastrous result which ensued. Where a case turns upon a question of fact, the jury should be advised of the conclusions of law which apply to each aspect of it. The object of investigations is to enable the jury to form an enlightened judgment on the whole case. The errors of commission and omission referred to, tended to give the jury a one-sided view of the controversy, and, when considered in connection with the facts that a *professional man* was on trial before a jury of *laymen*, and that the court, instead of guarding him, as in duty bound, against the prejudices likely to arise in such cases, actually indulged in a strain of remark calculated to inflame them, it is our duty to correct all the errors within our reach. The remarks complained of in the second assignment of error, affirm no principle of *law*, and are, therefore, not the subject of review here, farther than as they suggest the propriety of exercising a prudent discretion in regard to matters which are subject to review.

It is important to the interests of society that the profession intrusted with the preservation of the health and lives of the community should be held to a strict rule of accountability. Men of true science will not object to this. They court investigation. But the incompetent practitioner, and the designing empiric, "love darkness rather than light," and the sooner they are driven, by judicial scrutiny, into other pursuits for which they are better qualified, and where they can do less mischief, the better for the public welfare. But it is equally important that professional services should be fairly treated, and that true skill and worth should receive the firm protection of the law. All men have a right to the instructions which make in their favour; but the exigency of the surgeon's case rendered them indispensable on the present occasion. The difficulties which seem to stand in his way are sufficient without aggravating them by withholding the proper instructions in his favour.

For these reasons I am in favour of reversing the judgment, and awarding a *venire de novo*.

Aneurism of the Posterior Tibial Artery, treated by Compression.—Dr. Charles Bell Gibson reports (*Virginia Medical and Surgical Journal*, Aug. 1853) a case of aneurism of the posterior tibial artery near its origin, successfully treated by compression. The subject of it was a sea-captain, forty-three years of age, admitted into the Richmond Medical College Infirmary, Feb. 17, 1851. The tumour was first observed seven months previously, and when he was admitted, was larger than a hen's egg. "A firm bandage was applied from the toes to lower part of thigh, with a firm compress over the tumour. A tourniquet was applied over the popliteal artery, so firmly as to diminish, but not entirely arrest the pulsation in the tumour, and the limb placed on an inclined plane of about thirty degrees. This pressure was continued during the day as long as the patient could bear it, generally three or four hours at a time, and then the tourniquet was shifted to the distal side of the tumour, until the painful effect of the pressure above had passed away, when it was replaced. Occasionally it was applied directly over the tumour. During the night, the instrument was always applied above the popliteal artery, but with less firmness.

"The diet of Capt. Miller was ordered to be crackers and tea, or rice, and on this he continued for more than two months.

"The treatment was continued very carefully until 29th April, when it was found that pulsation had ceased in the tumour, and that its size had been gradually reduced to that of a small nutmeg.

"The tourniquets were now removed, but the bandage was continued and compression kept up directly over the remains of the tumour by means of a layer of sheet-lead. The patient was directed to preserve the recumbent posture with the limb elevated as before. His diet was somewhat improved, being now allowed a little soup every day, and potatoes.

"On the 1st May, he got up without permission and walked across the ward,

and continued to do so every day afterwards, at hours when the medical attendants were not there.

"On the 8th May, he expressed his wish to leave the infirmary, as he felt well enough to resume his profession. He was urged to remain, but as he would not, his condition was examined for the last time, and was considered conclusive of perfect cure. He was advised to continue to wear his bandage and lead compress, and promised to do so.

"He left the infirmary on the 9th, greatly reduced in strength and size by his rigid diet, and with some stiffness in the left knee, the result of its long confinement in one position."

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Trismus Nascentium successfully treated by Cannabis Indica.—In *The Charleston Medical Journal* for Nov. last, two cases of trismus nascentium are reported, one by Dr. P. C. Gaillard, and the other by Dr. H. W. De Saussure, which recovered under the use of cannabis indica. "Time and farther experience," Dr. Gaillard judiciously remarks, "must determine whether we possess in cannabis an agent capable of controlling the disease; or whether the cases which follow must be reckoned amongst those fortunate accidents, or coincidences, which too often mislead us in estimating the value of therapeutic agents."

Case I. Related by Dr. Gaillard. Rachael, a negress, æt. thirty-eight, of good constitution, was delivered of her eleventh child on Saturday, 23d July, 1853. The cord fell on the sixth day, and the child, a fine, robust boy, did well until Tuesday, August 2, when, towards evening, it was observed to be fretful and to nurse with difficulty. During the night it lost the power of taking the breast, and paroxysms of spasm became evident. I saw it the next day, August 3. The child was lying on the mother's lap. Paroxysms of spasm could be readily brought on by blowing into the face, or by attempting to introduce the finger or a spoon into the mouth. During the paroxysms, the muscles of the face were contracted so as to produce the characteristic expression; the lips prominent; the jaws fixed and slightly separated; the tongue pressed against and filling the narrow space between them; the nose compressed; the forehead wrinkled longitudinally; and the child uttered the grunting, whining cry, so peculiar in this disease. The muscles of the back and arms were rigid, and the fingers were forcibly shut upon the palms of the hands.

The navel had healed; there were no signs of irritation about it. The examination of the head showed that the occipital bone was in its normal position; the parietals did not override, or in the slightest degree overlap its anterior border. The child was still able to swallow a little; for although, whenever the milk with which the mother fed it was poured into the mouth, the greater part was forced out by the spasmodic action induced by its introduction, yet after a time a little was swallowed.

The following directions were given: The child to be constantly fed, while awake, with milk drawn from the mother's breast and poured into the mouth; large warm poultices to be kept constantly to the abdomen; a warm bath to be given twice a day, and a teaspoonful of the following mixture to be administered every two hours: tinct. cannabis indica ʒij, camphor water ℥ij.

On the 4th, no change. On the 5th, the spasms were reported as having increased in frequency and severity; the medicine was directed to be given every hour and a half. On the 6th and 7th, no appreciable change; the treatment was assiduously prosecuted. On the 8th, the dose of the medicine was increased; ʒij of the tincture of cannabis to ℥ij of camphor water, a teaspoonful every hour. On the 9th, the mother said that the child had nursed a little twice when she forced the nipple into its mouth. The spasms of some of the muscles were, however, still very violent, as I could with difficulty, and only by using considerable force, extend the fingers, which were forcibly contracted on the palm. On the 10th, the child took nourishment more freely by the spoon. On the 11th, the spasms were rather less frequent, and not so severe; the rigidity was less, and the child nursed twice. The improvement continued progressively. On the 21st, the spasms were very short, and the child took the breast readily when placed to its lips. On the 24th, the mother reported that there had been

no paroxysm of spasm for twenty-four hours, and that the child nursed freely. From the 16th, the intervals between the doses of the medicines were gradually increased, and it was continued, three doses a day, for some days after the disease had disappeared. The child has continued well up to this time, October 1st.

Case II. Reported by Dr. De Saussure. Priscilla, a stout, healthy negress, æt. twenty-six, was delivered of her third child on the 13th March, 1853. The infant was a large, healthy looking male. The cord was detached on the fifth day; on the seventh day the child was noticed as unusually fretful, and passed several greenish watery stools; on the night of the eighth day it was fretful, restless, scarcely slept at all, and was unable to move, although apparently anxious to do so. I saw it on the morning of the ninth day, the 22d of March. It was lying in the nurse's arms, with the features contracted, the brows corrugated, the muscles of the neck and back rigid and hard, the arms and legs flexed, so as to be extended with difficulty; the hands contracted, with the thumbs drawn tightly upon the palms; the jaws not very tightly closed—the little finger could be introduced into the mouth by a little effort; deglutition was possible, but the child could not nurse. The navel was not entirely healed, but the ulceration left by the dropping of the cord looked healthy. The child was ordered to be placed in a warm bath, a large poultice applied to the abdomen, and a teaspoonful of the following mixture given every two hours, viz.: ℞. Tinct. cannabis indica, ℥ss; syr. wild cherry, ℥iss; and the mother's milk to be given by teaspoonfuls frequently. On the 23d, there was aggravation of all the symptoms; the jaws were so firmly closed that a teaspoon was with difficulty introduced into the mouth; deglutition was extremely difficult; the arms, hands, and legs were more firmly flexed; opisthotonos was present to a great degree; the slightest motion, a breath of air upon the face, even touching the lips with the finger, was sufficient to bring on general spasms, accompanied by the peculiar whimpering cry so characteristic of this disease. The head was carefully examined; no depression of the occipital bone could be detected. The same treatment was continued, and a teaspoonful of the mixture was given every hour. From the 24th to the 28th, the intensity of the disease gradually increased, until it seemed impossible that the child could survive each spasmodic paroxysm. It was with great difficulty, and only by patient perseverance, that either milk or medicine could be swallowed. All general treatment was now abandoned. A dose of the cannabis mixture was ordered to be given every half hour, and as much milk given as the infant could be made to swallow. On the 28th, 29th, 30th, and 31st March, half an ounce of tinct. cannabis was administered every twenty-four hours. On the 1st of April, symptoms of amendment began to be visible; the spasms were less frequent, and less easily excited; the rigidity of the arms, hands, and legs, was less; and deglutition was effected with less difficulty. This improvement gradually but steadily progressed; the quantity of cannabis was proportionately decreased, and by the 10th of April, the child was entirely convalescent. It is now a fine, healthy infant.

Traumatic Tetanus successfully treated by Ice.—Dr. B. D. Carpenter relates (*New York Medical Times*, Nov. 1853) two cases of traumatic tetanus successfully treated by the application of ice to the head and the whole length of the spine. The following are the particulars of one of these cases:—

E. G., aged sixteen years, of good constitution and habits, jumped from a fence on the stump of a twig some half an inch in diameter, which made a wound in the ball of the right foot three-quarters of an inch deep. Twelve days after the accident he complained of feeling lame and stiff; during the night was awaked by a violent spasm; the next day complained of stiffness and soreness of the muscles of the neck and throat, and pain at the scrobiculus cordis; the following night, during sleep, was seized again with spasm; and the next morning, when I was sent for, I found him complaining of pain in the above region, great rigidity of the whole muscular system, attended with difficulty in swallowing, and constraint in moving the head and jaws, and in articulating. During the spasm, the body was curved backwards and thrown to one side, the dyspnœa

was considerable, pulse full and slightly accelerated, skin warm and moist, bowels costive, urine scanty and high-coloured.

Administered a purgative, which was assisted by enemas. The patient was then put upon the free use of opium in the shape of Dover's powder, and the bowels kept open by the use of cathartics and injections of ℥j tinct. assafœtida in half a pint of soapsuds, repeated as often as the preceding one came away. This treatment was continued for four days, during which time he gradually grew worse. The tetanic rigidity and spasm increased until the sixth day; when, finding that he must die unless something farther could be done to allay the pain and extreme spasm, and viewing the difficulty as being an irritation of the spine, perhaps connected with congestion of the membranes covering the spinal marrow, I determined to apply ice to the head and the whole length of the spinal column, since the whole muscular system was affected. I did so, and in ten minutes had the satisfaction of seeing the pulse come down from 110 to 75, and all the urgent symptoms relieved; the rigidity was gone, and he had but one spasm after the ice was applied; his bowels were kept open, and assafœtida injections were continued twice a day, to allay the irritability of the nervous system, manifested by slight twitchings. No medicines were given by the mouth. The wound entirely healed, and in three days the patient was discharged cured; and his health since has been as perfect as before the attack.

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Amputation at the Shoulder-Joint.—Dr. Freiott, of Troy, reports (*New York Journ. Med.* Nov. 1853) the case of a man, forty-six years of age, whose arm was injured by a bank of earth falling upon him. His humerus was comminuted three inches below the head, "the integuments and muscles were torn away, leaving the bone exposed from the anterior and external side of the neck of the humerus, from a line one inch posterior to the acromion process, to the insertion of the pectoralis major muscle." The patient was much depressed, and stimulants were freely given. So soon as reaction was induced, Dr. F. removed the limb at the shoulder-joint. The ligature on the axillary artery came away on the 23d day, and when the report was made, about two months after the operation, the wound had nearly cicatrized.

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Femoral Exostosis.—Dr. L. A. Dugas records (*Southern Med. and Surg. Journ.* Dec. 1853), an interesting case of large exostosis of the right femur in a man twenty-eight years of age. The tumour was exposed by an incision about eight inches long, and sawed off. For a few hours everything promised well, but after that, the patient suffered from jerking of the muscles of the limb; and the patient died on the fourth day after the operation from "infection induced by the rapid decomposition of the tissues that had been so long exposed to contusion, and which were found lacerated and filled with black blood and grumous matter."

Dr. Dugas gives a summary of six cases, making with his own seven, of which three had been operated on successfully, two had resulted fatally, and in the other two the result was uncertain.

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A White African.—Dr. E. C. Hood, of Whiteville, Ga., records (*Southern Med. and Surg. Journ.* Aug. 1853) the following example of this:—

"Charlotte is a woman 34 years old, and living within one mile of me, whose skin is as fair as that of any lady of Caucasian blood, and who was as black at the age of 11 as any African. She says her health has been uniformly good, with the exception of one 'spell of bowel complaint,' which occurred when she was about ten years old; some time after which, a white spot appeared on her forehead, which gradually though slowly enlarged. In the meantime, other spots appeared on different parts of the face, which also increased in size, until the whole face became perfectly white. The change in the color of the face was completed in about six years; and she says that after her face 'turned white,' her whole body changed in one week. I saw her frequently during the metamorphosis, and noted its progress, during which time her countenance was so hideous that she was a fright to all the juveniles of the neighbourhood.

"She is at present strictly a white woman, except her eyes and hair, which are those of the negro; the latter, however, being whitish all around the margin. The skin freckles, and is easily blistered by the sun. She is a good servant, has ordinary intelligence, has had ten healthy children, all of whom are as black as their father, who is a full-blooded African.

"The above are the facts of this 'strange freak of nature.' Was the change a pathological or a physiological one? I am inclined to the latter opinion, because the subject was in good health, and the skin seemed to be so during the change. But what strange whim possessed the absorbents to remove the pigmentum nigrum?

"These are questions I shall leave to be answered by those who have more taste and talent for speculation than your humble servant."

American Medical Association.—The seventh annual meeting of the American Medical Association will be held in the city of St. Louis on Tuesday, May 2, 1854.

The secretaries of all societies and of all other bodies entitled to representation in the Association, are requested to forward to the undersigned correct lists of their respective delegations *as soon as they may be appointed;* and it is *earnestly* desired by the Committee of Arrangements that the appointments be made at as early a period as possible.

The following are extracts from article second of the constitution:—

"Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half of this number. The faculty of every regularly constituted medical college or chartered school of medicine shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred patients or more, shall have the privilege of sending two delegates, and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate."

"Delegates representing the medical staffs of the United States Army and Navy shall be appointed by the chiefs of army and navy medical bureaux. The number of delegates so appointed shall be four from the army medical officers, and an equal number from the navy medical officers."

The latter clause, in relation to delegates from the army and navy, was adopted as an amendment to the constitution at the last meeting of the Association held in New York, in May, 1853.

E. S. LEMOINE,
One of the Secretaries, St. Louis.

The medical press of the United States is respectfully requested to copy the foregoing.